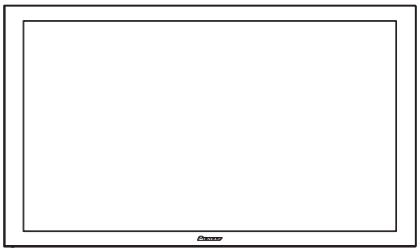
Pioneer sound.vision.soul

Service Manual



PDP-5000EX

ORDER NO.
ARP3344

PLASMA DISPLAY

PDP-5000EX

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Model	Type	Power Requirement	Remarks
PDP-5000EX	TYV5	AC 110 to 240 V	

For details, refer to "Important symbols for good services".

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1. NOTES ON SERVICE VISIT

1.1 SAFETY INFORMATION

This service manual is intended for qualified service technicians ; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING
This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 - Proposition 65

NOTICE
(FOR CANADIAN MODEL ONLY)
Fuse symbols (fast operating fuse) and/or (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE
(POUR MODÈLE CANADIEN SEULEMENT)
Les symboles de fusible (fusible de type rapide) et/ou (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

SAFETY PRECAUTIONS

NOTICE : Comply with all cautions and safety related notes located on or inside the cabinet and on the chassis.

The following precautions should be observed :

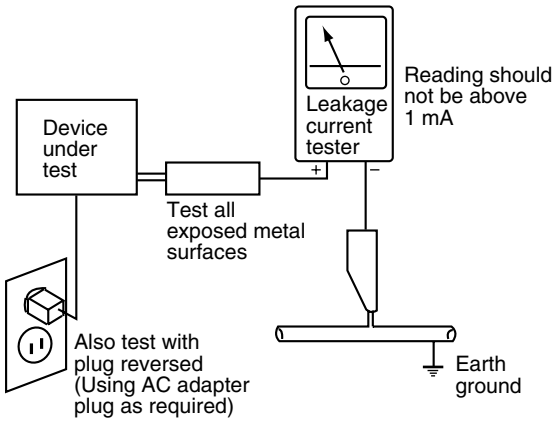
1. When service is required, even though the PDP UNIT an isolation transformer should be inserted between the power line and the set in safety before any service is performed.
2. When replacing a chassis in the set, all the protective devices must be put back in place, such as barriers, nonmetallic knobs, adjustment and compartment covershields, isolation resistor-capacitor, etc.
3. When service is required, observe the original lead dress. Extra precaution should be taken to assure correct lead dress in the high voltage circuitry area.
4. Always use the manufacture's replacement components. Especially critical components as indicated on the circuit diagram should not be replaced by other manufacture's. Furthermore where a short circuit has occurred, replace those components that indicate evidence of overheating.
5. Before returning a serviced set to the customer, the service technician must thoroughly test the unit to be certain that it is completely safe to operate without danger of electrical shock, and be sure that no protective device built into the set by the manufacture has become defective, or inadvertently defeated during servicing. Therefore, the following checks should be performed for the continued protection of the customer and servicetechnician.
6. Perform the following precautions against unwanted radiation and rise in internal temperature.
   - Always return the internal wiring to the original styling.
   - Attach parts (Gascket, Ferrite Core, Ground, Rear Cover, Shield Case etc.) surely after disassembly.
7. Perform the following precautions for the PDP panel.
   - When the front case is removed, make sure nothing hits the panel face, panel corner, and panel edge (so that the glass does not break).
   - Make sure that the panel vent does not break. (Check that the cover is attached.)
   - Handle the FPC connected to the panel carefully. Twisting or pulling the FPC when connecting it to the connector will cause it to peel off from the panel.
8. Pay attention to the following.
   - When the front case is removed, infrared ray is radiated and may disturb reception of the remote control unit.
   - Pay extreme caution when the front case and rear panel are removed because this may cause a high risk of disturbance to TVs and radios in the surrounding.

Leakage Current Cold Check

With the AC plug removed from an AC power source, place a jumper across the two plug prongs. Turn the AC power switch on. Using an insulation tester (DC 500V), connect one lead to the jumpered AC plug and touch the other lead to each exposed metal part (input/output terminals, screwheads, metal overlays, control shafts, etc.), particularly any exposed metal part having a return path to the chassis. Exposed metal parts having a return path to the chassis should have a minimum resistor reading of 4 MΩ.
The below 4MΩ resistor value indicate an abnormality which require corrective action. Exposed metal parts not having a return path to the chassis will indicate an open circuit.

Leakage Current Hot Check

Plug the AC line cord directly into an AC power source (do not use an isolation transformer for this check).
Turn the AC power switch on.
Using a "Leakage Current Tester (Simpson Model 229 equivalent)", measure for current from all exposed metal parts of the cabinet (input/output terminals, screwheads, metal overlays, control shaft, etc.), particularly any exposed metal part having a return path to the chassis, to a known earth ground (water pipe, conduit, etc.). Any current measured must not exceed 1mA.


Reading should not be above 1 mA
Leakage current tester
+
–
Device under test
Test all exposed metal surfaces
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE SET TO THE CUSTOMER.

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in PIONEER set have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.
Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire or other hazards.
Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

■Charged Section

The places where the commercial AC power is used without passing through the power supply transformer.
If the places are touched, there is a risk of electric shock. In addition, the measuring equipment can be damaged if it is connected to the GND of the charged section and the GND of the non-charged section while connecting the set directly to the commercial AC power supply. Therefore, be sure to connect the set via an insulated transformer and supply the current.

1. AC Power Cord
2. AC Inlet with Filter
3. Power Switch (S1)
4. Fuse (In the PANEL POWER SUPPLY Unit and MR POWER SUPPLY Unit)
5. STB Transformer and Converter Transformer (In the PANEL POWER SUPPLY Unit and MR POWER SUPPLY Unit)
6. Other primary side of the PANEL POWER SUPPLY Unit and MR POWER SUPPLY Unit

■High Voltage Generating Point

The places where voltage is 100V or more except for the charged places described above. If the places are touched, there is a risk of electric shock.

If the procedures described in "10.2 POWER ON/OFF FUNCTION FOR THE LARGE-SIGNAL SYSTEM" are performed before the power is turned off, the voltage will be discharged in about 1 minutes.

1. POWER SUPPLY Unit..... (205 V)
2. 50FHD X DRIVE Assy ..... (–180 V to 205 V)
3. 50 FHD Y DRIVE Assy .....(–60 V to 500 V)
4. 50FHD SCAN A Assy .....(–60 V to 500 V)
5. 50FHD SCAN B Assy .....(–60 V to 500 V)

: Part is Charged Section.

: Part is the High Voltage Generating Points other than the Charged Section.

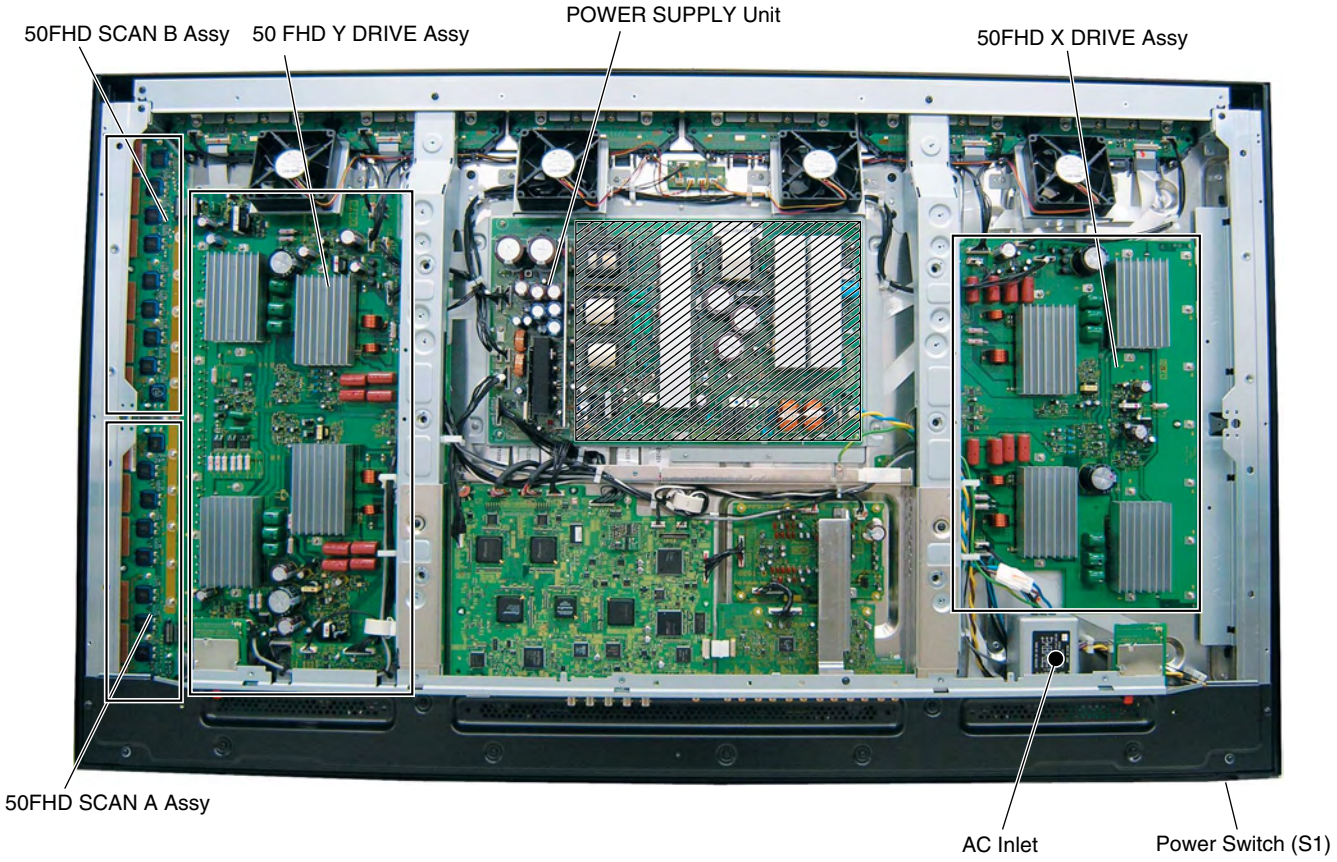


Fig.2 Charged Section and High Voltage Generating Point (Rear View)

[Important Check Points for Good Servicing]

In this manual, procedures that must be performed during repairs are marked with the below symbol.
Please be sure to confirm and follow these procedures.

1. Product safety

Please conform to product regulations (such as safety and radiation regulations), and maintain a safe servicing environment by following the safety instructions described in this manual.

① Use specified parts for repair.

Use genuine parts. Be sure to use important parts for safety.

② Do not perform modifications without proper instructions.

Please follow the specified safety methods when modification(addition/change of parts) is required due to interferences such as radio/TV interference and foreign noise.

③ Make sure the soldering of repaired locations is properly performed.

When you solder while repairing, please be sure that there are no cold solder and other debris.
Soldering should be finished with the proper quantity. (Refer to the example)

④ Make sure the screws are tightly fastened.

Please be sure that all screws are fastened, and that there are no loose screws.

⑤ Make sure each connectors are correctly inserted.

Please be sure that all connectors are inserted, and that there are no imperfect insertion.

⑥ Make sure the wiring cables are set to their original state.

Please replace the wiring and cables to the original state after repairs.
In addition, be sure that there are no pinched wires, etc.

⑦ Make sure screws and soldering scraps do not remain inside the product.

Please check that neither solder debris nor screws remain inside the product.

⑧ There should be no semi-broken wires, scratches, melting, etc. on the coating of the power cord.

Damaged power cords may lead to fire accidents, so please be sure that there are no damages.
If you find a damaged power cord, please exchange it with a suitable one.

⑨ There should be no spark traces or similar marks on the power plug.

When spark traces or similar marks are found on the power supply plug, please check the connection and advise on secure connections and suitable usage. Please exchange the power cord if necessary.

⑩ Safe environment should be secured during servicing.

When you perform repairs, please pay attention to static electricity, furniture, household articles, etc. in order to prevent injuries.
Please pay attention to your surroundings and repair safely.

2. Adjustments

To keep the original performance of the products, optimum adjustments and confirmation of characteristics within specification.
Adjustments should be performed in accordance with the procedures/instructions described in this manual.

3. Lubricants, Glues, and Replacement parts

Use grease and adhesives that are equal to the specified substance.
Make sure the proper amount is applied.

4. Cleaning

For parts that require cleaning, such as optical pickups, tape deck heads, lenses and mirrors used in projection monitors, proper cleaning should be performed to restore their performances.

5. Shipping mode and Shipping screws

To protect products from damages or failures during transit, the shipping mode should be set or the shipping screws should be installed before shipment. Please be sure to follow this method especially if it is specified in this manual.

1.2 QUICK REFERENCE UPON SERVICE VISIT

PDP-5000EX Quick Reference upon Service Visit ①
Notes, PD/SD diagnosis, and methods for various settings

Notes when visiting for service

1. Notes when disassembling/reassembling

① **Rear case**
When reassembling the rear case, the screws must be tightened in a specific order. Be careful not to tighten them in the wrong order forcibly. For details, see "Rear Case" in "6. DISASSEMBLY"

② **Attaching screws for the HDMI connector**
When attaching the HDMI connector after replacing the Main Assy, secure the HDMI connector manually with a screwdriver, but not with an electric screwdriver. If you tighten the screws too tightly with an electric screwdriver, the screw heads may be damaged, in which case the screws cannot be untightened/tightened any more.

2. On parts replacement

① **How to discharge before replacing the Assys**
A charge of significant voltage remains in the Plasma Panel even after the power is turned off. Safely discharge the panel before replacement of parts, in either manner indicated below:
A: Let the panel sit at least for 3 minutes after the power is turned off.
B: Turn the Large Signal System off before the power is turned off then, after 1 minute, turn the power off.
For details, see "10.2 Power ON/OFF Function for the Large-Signal System."

② **On the settings after replacement of the Assys**
Some boards need settings made after replacement of the Assys. For details, see "7. ADJUSTMENT"

3. On various settings

① **SR+**
After a repair using a PC, be sure to restore the setting for the RS-232C connector to SR+.

② **Setting in Factory mode**
After a Mask indication into the panel is performed, be sure to set the Mask setting to "OFF" then exit Factory mode.

PD/SD

	Item	No. of LEDs flashing	
		Red	Blue
Panel section	Communication with the panel drive IC		Blue 1
	Communication with the module IIC		Blue 2
	DIGTAL-RST2		Blue 3
	Panel high temperature		Blue 4
Main section	Audio		Blue 5
	Communication with the Module microcomputer		Blue 6
	Main 3-wire serial communication		Blue 7
	Main IIC communication		Blue 8
	Communication with the Main microcomputer		Blue 9
	FAN		Blue 10
	Unit high temperature		Blue 11
	No corresponding item		Blue 12
	MTB-RST2/RST4		Blue 13
	POWER	Red 2	
	SCAN	Red 3	
	SCN-5V	Red 4	
	Y-DRIVE	Red 5	
	Y-DCDC	Red 6	
	Y-SUS	Red 7	
	ADRS	Red 8	
	X-DRIVE	Red 9	
	X-DCDC	Red 10	
	X-SUS	Red 11	
	UNKNOWN	Red 15	

Change of settings

How to enter Factory mode using the supplied remote control unit

In the same way as with the remote control unit supplied with the 6th-generation model

How to switch UART ① (Main menu)

① Start up the unit by pressing [STANDBY/ON].
② Press [HOME MENU].
③ Select "Initial Setting" using [⬇], then press [ENTER].
④ Select "SR+", using [⬇].
⑤ Select "NO", using [⬅] or [➡].
(The baud rate is 9600 bps.)

How to switch UART ② (During Standby)

① Enter Standby mode.
② Hold [Volume +] or [-] pressed for 3 seconds.
③ Hold [SPLIT] pressed for 3 seconds.
④-1 To set to 232C, press [ENTER].
⑤-2 To set to SR+, press [HOME MENU].

Note: If switching is completed successfully, the red LED will flash twice.
Note 1: Use a remote control unit supplied with the 6th-generation models or later.
Note 2: Do not hold a key pressed for more than 5 seconds.

How to locate several items on the Factory menu

{ } : Item on the Factory menu
[ ] : Key on the remote control unit
" " : Screen indication

1. Confirmation of accumulated power-on time and power-on count
Select {INFORMATION} then {HOUR METER}.
(After entering Factory mode, press [⬇] three times.)

2. Confirmation of the Power-down and Shutdown histories

① **Panel system**
PD: Select {PANEL FACTORY} then {POWER DOWN}.
(After entering Factory mode, press [MUTING] once, press [ENTER], then press [⬇] three times.)
SD: Select {PANEL FACTORY} then {SHUT DOWN}.
(After entering Factory mode, press [MUTING] once, press [ENTER], then press [⬇] four times.)

② **Main Assy**
Select {INFORMATION} then {MAIN NG}.
(After entering Factory mode, press [⬇] once.)

3. How to display the Mask indication

① **Mask indication in the panel side**
1. Select {PANEL FACTORY} then {RASTER MASK SETUP}.
(After entering Factory mode, press [MUTING] once, press [ENTER], then press [⬇] 8 times.)
2. Press [ENTER], then select a Mask indication, using [⬆] or [⬇].

② **Mask (SG screen) indication in the Main Assy (MAIN VDEC)**
1. Select either Input 5 or 6, to which no signal is input (black screen).
2. Select {INITIALIZE} then {SG MODE}. Press [⬅]. (After entering Factory mode, press [MUTING] twice, then press [⬇] once.)
Then, the indication at the lower right of the screen changes from "OFF" to "ANA AD YCBCR".
3. You can change Mask patterns by pressing [⬇] to select {SG PATTERN} then using [⬅] or [➡].

Note: When you switch "SG MODE" routes, some displays become monochrome, as they are in Y-signal only mode.

Adjustments and Settings after replacement of the Assys (Procedures in Factory mode)

1. Digital Video Assy: Transfer of backup data
① Select {PANEL FACTORY}, {ETC}, then {BACKUP DATA}. (After entering Factory mode, press [MUTING] once, press [ENTER], press [⬇] seven times, then press [ENTER].)
② Select {TRANSFER}, using [➡], then hold [ENTER] pressed for at least 5 seconds.
③ After transfer of backup data is completed, {ETC} is automatically selected, and the LED on the front panel returns to normal lighting.

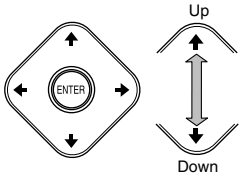
2. MAIN Assy: Execution of FINAL SETUP.
① Select {INITIALIZE} then {FINAL SETUP}, then press [ENTER]. (After entering Factory mode, press [MUTING] twice, then press [⬇] four times.)
② With a North American model, select "YES US", and with a European model, select "YES EU". Then hold [ENTER] pressed for at least 5 seconds.
③ After "FINAL SETUP IS COMPLETE" is displayed on the screen, enter Standby mode.
④ Press [HOME MENU] then, within 3 seconds, press [STANDBY].
⑤ After the Integrator menu is displayed, select {ORBITER MODE} by pressing [⬇] twice.
⑥ Select "ON" for {ORBITER MODE}, using [➡].
⑦ Press [⬇] once to select {MASK CONTROL}.
⑧ Select "ON" for {MASK CONTROL}, using [➡].
⑨ Press [HOME MENU] to exit Integrator mode.

3. POWER SUPPLY Unit: Clearance of the accumulated power-on count and maximum temperature value
① Select {PANEL FACTORY}, {ETC}, then {P COUNT INFO}. (After entering Factory mode, press [MUTING] once, press [ENTER], press [⬇] seven times, press [ENTER], then press [⬇] six times.)
② Press [➡] to select "CLEAR". Hold [ENTER] pressed for at least 5 seconds.
After clearance is completed, "ETC" is automatically selected. Clear the maximum temperature value (MAX TEMP) in the same manner.

4. Other Assys: Clearance of the maximum temperature value
① Select {PANEL FACTORY}, {ETC}, then {MAX TEMP}. (After entering Factory mode, press [MUTING] once, press [ENTER], press [⬇] seven times, press [ENTER], then press [⬇] seven times.)
② Press [➡] to select "CLEAR". Hold [ENTER] pressed for at least 5 seconds.
After clearance is completed, "ETC" is automatically selected.

PDP-5000EX Quick Reference upon Service Visit ②
Mode transition and structure of layers in Service Factory mode

Mode transition in Service Factory mode



- To shift to another mode, press [MUTING].
- To shift to another item in a specific mode, press [⬆] or [⬇].
- To shift to the next nested layer below for an item with a "(+)" indication, press [ENTER]. To return to the next nested layer above, also press [ENTER].

INFORMATION mode
1. VERSION (1)
2. MAIN NG
3. TEMPERATURE
4. HOUR METER
5. HDMI SIGNAL INFO1
6. HDMI SIGNAL INFO2
7. VDEC SIGNAL INFO

MUTING

INITIALIZE mode
1. SYNC DET
2. SG MODE
3. SG PATTERN
4. SIDE MASK LEVEL
5. FINAL SETUP
6. HDMI INTR POSITION

MUTING

PANEL FACTORY mode
1. PANEL INFORMATION
2. PANEL WORKS
3. POWER DOWN
4. SHUT DOWN
5. PANEL-1 ADJ
6. PANEL-2 ADJ
7. PANEL REVICE
8. ETC.
9. RASTER MASK SETUP
10. PATTEN MASK SETUP
11. COMBI MASK SETUP

MUTING

Structure of Layers in Service Factory Mode

INFORMATION mode	
├ 1. VERSION (1)	Version indications for the main system and panel system
├ 2. MAIN NG	Shutdown history for the main system (To shift to the CLEAR layer, press [SET].)
│ └ 2-1.CLEAR	To clear data, select "YES", using [⬅] or [➡], then hold [SET] pressed for several seconds.
├ 3. TEMPERATURE	Indications of converted temperature values for temperature sensors 1 and 2 and fan operation
├ 4. HOUR METER	Indications of the accumulated power-on time and power-on count of the panel
├ 5. HDMI SIGNAL INFO 1	Items for use by engineers
├ 6. HDMI SIGNAL INFO 2	Indications of data such as HDMI signal judgment (For details, see the corresponding page.)
├ 7. VDEC SIGNAL INFO	Items for use by engineers
PANEL FACTORY mode	See "Structure of Layers in Panel Factory Mode."
INITIALIZE	
├ 1. SYNC DET (+)	Items for use by engineers
├ 2. SG MODE	ON/OFF of the SG signal from the MAIN VDEC (composite input signal required)
├ 3. SG PATTERN SG	Selection of the SG signal
├ 4. SIDE MASK LEVEL (+)	Items for use by engineers
│ ├ 4-1. R MASK LEVEL	
│ ├ 4-2. G MASK LEVEL	
│ └ 4-3. B MASK LEVEL	
├ 5. FINAL SETUP	Factory-preset items (Setup must be executed after replacement of the Main Assy.)
│ └ 5-1. DATA RESET	
└ 6. HDMI INTER POSITION (+)	Items for use by engineers

Structure of Layers in Panel Factory Mode 1

1. PANEL INFORMATION	Version indication of the panel
2. PANEL WORKS	Indications of the accumulated power-on time, pulse-meter count, and power-on count of the panel
3. POWER DOWN	Indication of the Power-down history
4. SHUT DOWN	Indication of the Shutdown history
5. PANEL-1 ADJ (+)	
├ 1. X-SUS B	Modification not required because these items are basically for factory presetting
├ 2. Y-SUS B	
├ 3. Y-SUSTAIL T1	
├ 4. Y-SUSTAIL T2	
├ 5. Y-SUSTAIL W	
├ 6. XY-RST W1	
├ 7. XY-RST W2	
├ 8. VOL SUS	Settings required after replacement of the panel
├ 9. VOL OFFSET	
├ 10. VOL RST P	
├ 11. SUS FREQ.	For AM noise prevention (Depending on the mode, brightness of the screen changes.)
6. PANEL-2 ADJ (+)	
├ 1. R-HIGH	Parameters for the WB adjustment of the panel, which are required during adjustment after panel replacement
├ 2. G-HIGH	
├ 3 .B-HIGH	
├ 4. R-LOW	
├ 5. G-LOW	
├ 6. B-LOW	
├ 7. ABL	Setting of the power consumption. A setting table is available for each vertical signal.

To "Structure of Layers in Panel Factory Mode 2"

Structure of Layers in Panel Factory Mode 2

7. PANEL REVISE(+)	
├ R-LEVEL	Items for use by engineers
├ G-LEVEL	
├ B-LEVEL	
8. ETC(+)	
├ 1. BACKUP DATA	For transferring backup data (after replacement of the DIGITAL Assy)
├ 2. DIGITAL EEPROM	To clear data of the digital video
├ 3. PD INFO.	For clearance of data for the corresponding items. The clearing method is the same: Select "CLEAR", using [➡], then hold [SET] pressed for at least 5 seconds. After clearance is completed, {ETC} is automatically selected.
├ 4. SD INFO.	
├ 5. HR-MTR INFO.	
├ 6. PM/B1-B5	
├ 7. P COUNT INFO.	
├ 8. MAX TEMP.	
9. RASTER MASK SETUP (+)	
├ 1. MASK OFF	For use while Raster Mask (full mask) is displayed. Use [⬆] or [⬇] to select the type of mask.
├ 2. RST MASK 01	
≈ • • • • •	
└ 25. RST MASK 24	
10. PATTEN MASK SETUP (+)	
├ 1. MASK OFF	For use while Pattern Mask is displayed. Use [⬆] or [⬇] to select the type of mask.
├ 2. PTN MASK 01	
≈ • • • • •	
└ 40. PTN MASK 39	
11. COMBI MASK SETUP (+)	
├ 1. MASK OFF	For use while Combination Mask is displayed. Use [⬆] or [⬇] to select the type of mask.
├ 2. CMB MASK 01	
≈ • • • • •	
└ 11. CMB MASK 10	

1.3 JIGS LIST

■ Jigs list

Jig No.	Jig Name	Remarks
GGF1475	Communication jig	used for RS-232C command communication

■ Cleaning

Name	Part No.	Remarks
Cleaning liquid	GEM1004	Used to fan cleaning. Refer to "2.4 CHASSIS SECTION (1/2) ", "6. DISASSEMBLY: 2-4 Fan Motor".
Cleaning paper	GED-008	

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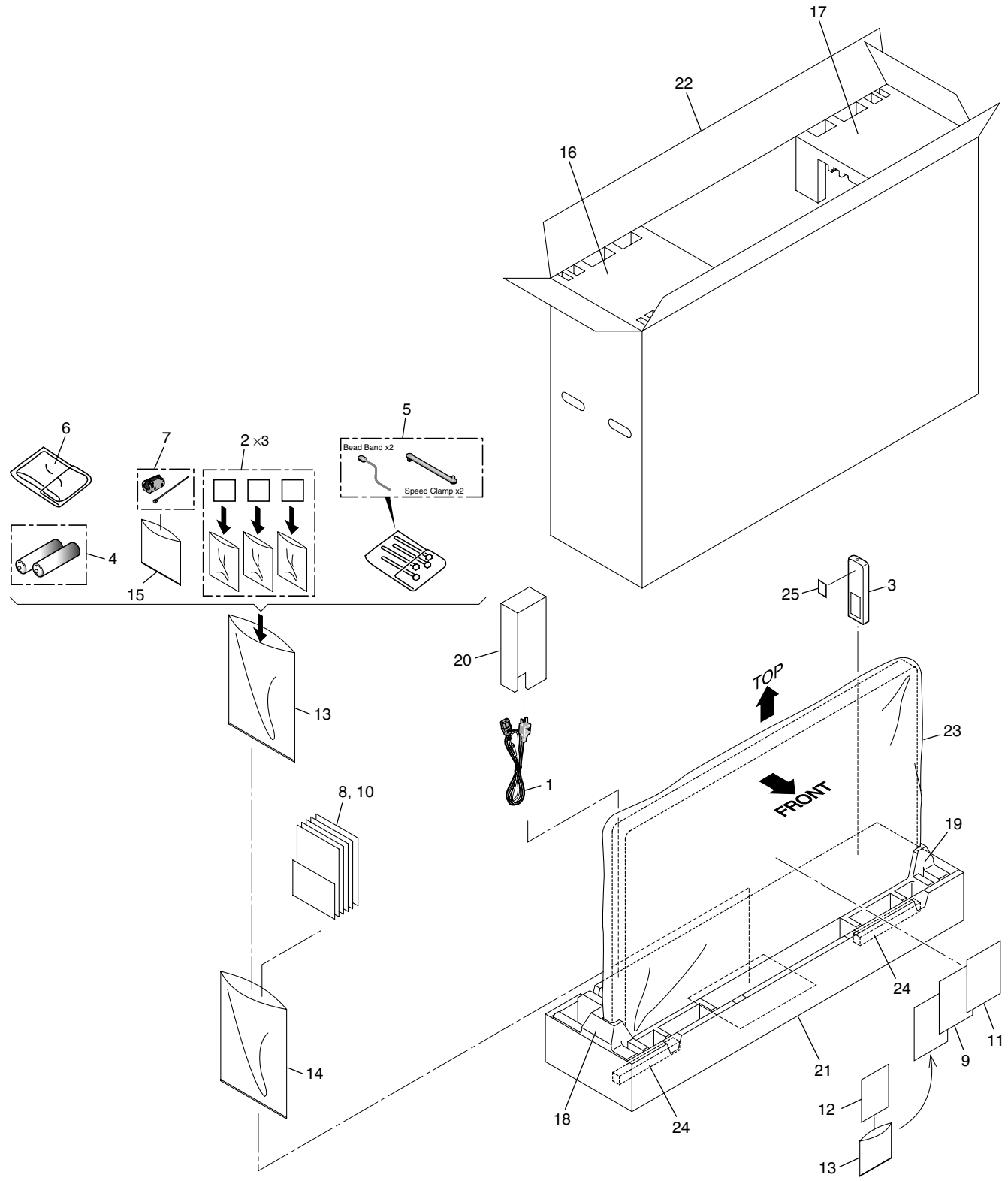
2. EXPLODED VIEWS AND PARTS LIST

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Screws adjacent to ▼ mark on product are used for disassembly.*
- *For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions, apply as you think it appropriate.)*

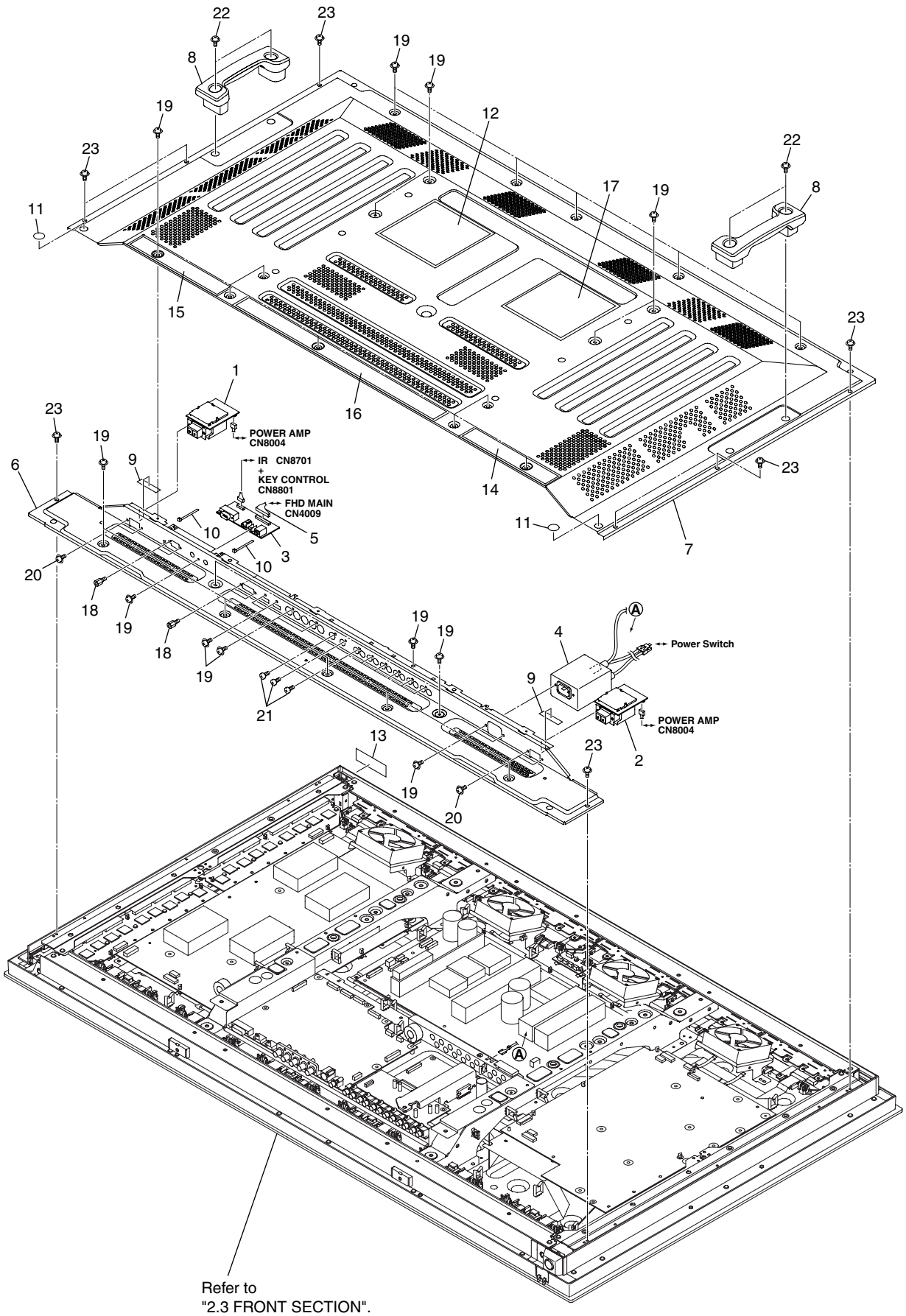
2.1 PACKING SECTION



PACKING SECTION PARTS LIST

Mark	No.	Description	Part No.
⚠	1	Power Cord	ADG1214
	2	BNC Conversion Connector	AKX1052
	3	SR Remote Control Assy F (E)	AXD1535
NSP	4	Dry Cell Battery (R6P, AA)	VEM1031
	5	Binder Assy	AEC1758
	6	Wiping Cloth	AED1285
	7	Ferrite Core	ATX1039
	8	Operating Instructions (English /French/ German/ Italian/ Duch/ Spanish)	ARE1424
	9	Caution Sheet	ARM1232
	10	Wiping Cloth Caution (11L)	ARM1283
	11	Caution Sheet (7L)	ARM1309
NSP	12	Warranty	ARY1114
	13	Catalogue Bag	AHG1340
	14	Polyethylen Bag	AHG1336
	15	Polyethylen Bag	AHG1337
	16	Pad (50T-L)	AHA2546
	17	Pad (50T-R)	AHA2547
	18	Pad (50B-L)	AHA2548
	19	Pad (50B-R)	AHA2549
	20	Power Cord Case	AHC1073
	21	Under Carton (505)	AHD3326
	22	Upper Carton (50F_PE)	AHD3476
	23	Mirror Mat	AHG1284
	24	Protector	AHG1384
	25	WEEE Label L	AAX3271

2.2 EXTERIOR SECTION

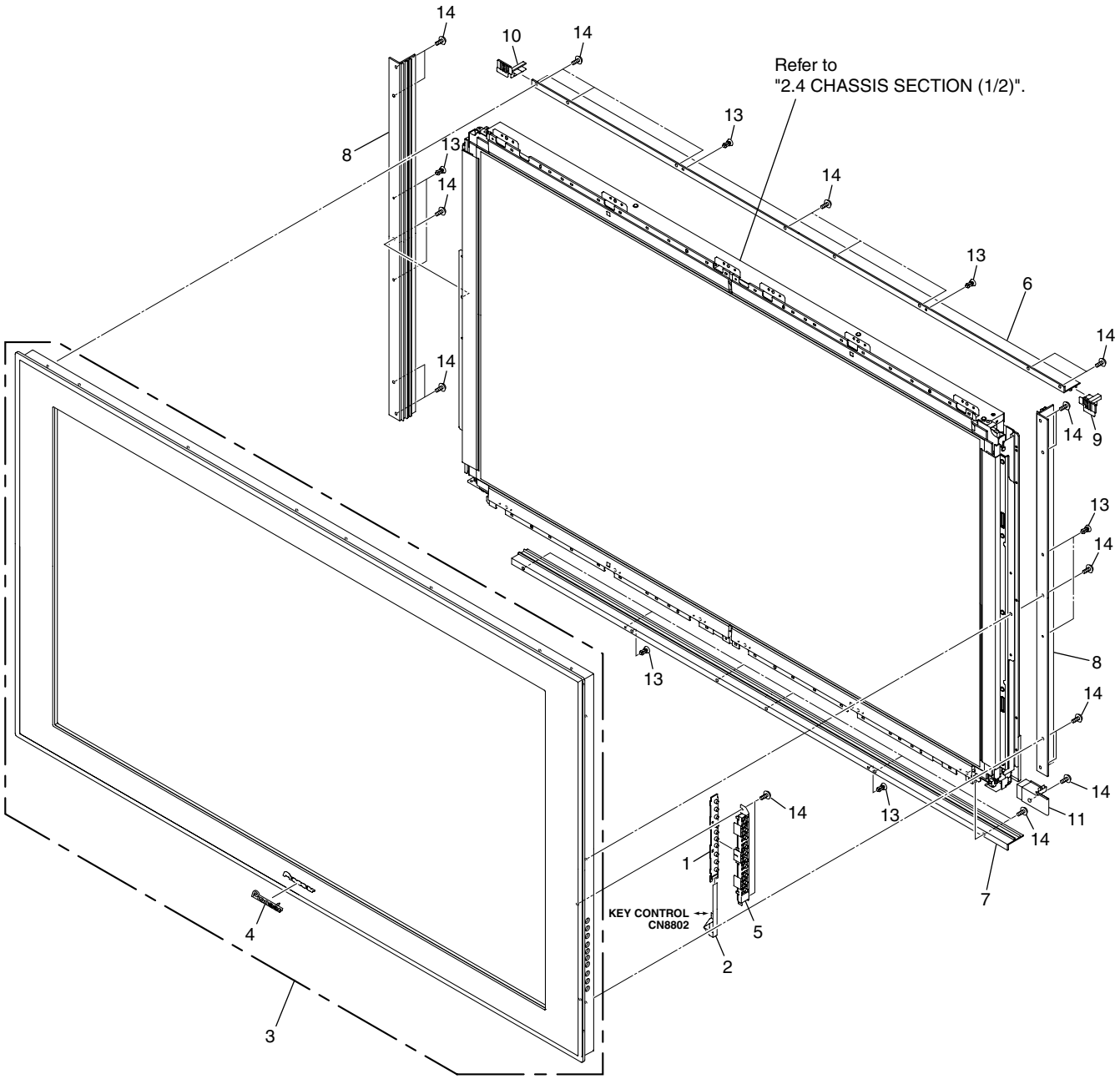


EXTERIOR SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	FHD SP LR1 Assy	AWW1119
	2	FHD SP LR2 Assy	AWW1120
	3	FHD RS232C+SR Assy	AWW1126
⚠	4	AC Inlet (CN1)	AKP1297
	5	14P Housing Wire (J119)	ADX3311
	6	Terminal Panel (F)	ANG2914
	7	Rear Case (F)	ANE1654
	8	Grip	AMR3380
	9	Gasket SP-T	ANK1750
	10	Binder	AEC-093
	11	Rear Corner Label (15)	AAX3081
NSP	12	Name Label (50FE)	AAL2761
	13	Serial Seal	AAX3143
	14	Terminal Display Label L (50FE)	AAX3320
	15	Terminal Display Label R (50FE)	AAX3321
	16	Terminal Display Label C (50FE)	AAX3322
	17	Caution Label (50F)	AAX3323
	18	Hexagon Head Screw	BBA1051
	19	Screw	AMZ30P060FTB
	20	Screw	APZ30P080FTB
	21	Screw	BPZ30P080FTB
	22	Screw	HMB50P140FTB
	23	Screw	TBZ40P080FTB

* 1. FHD SP LR1 Assy and 2. FHD SP LR2 Assy can be replaced.

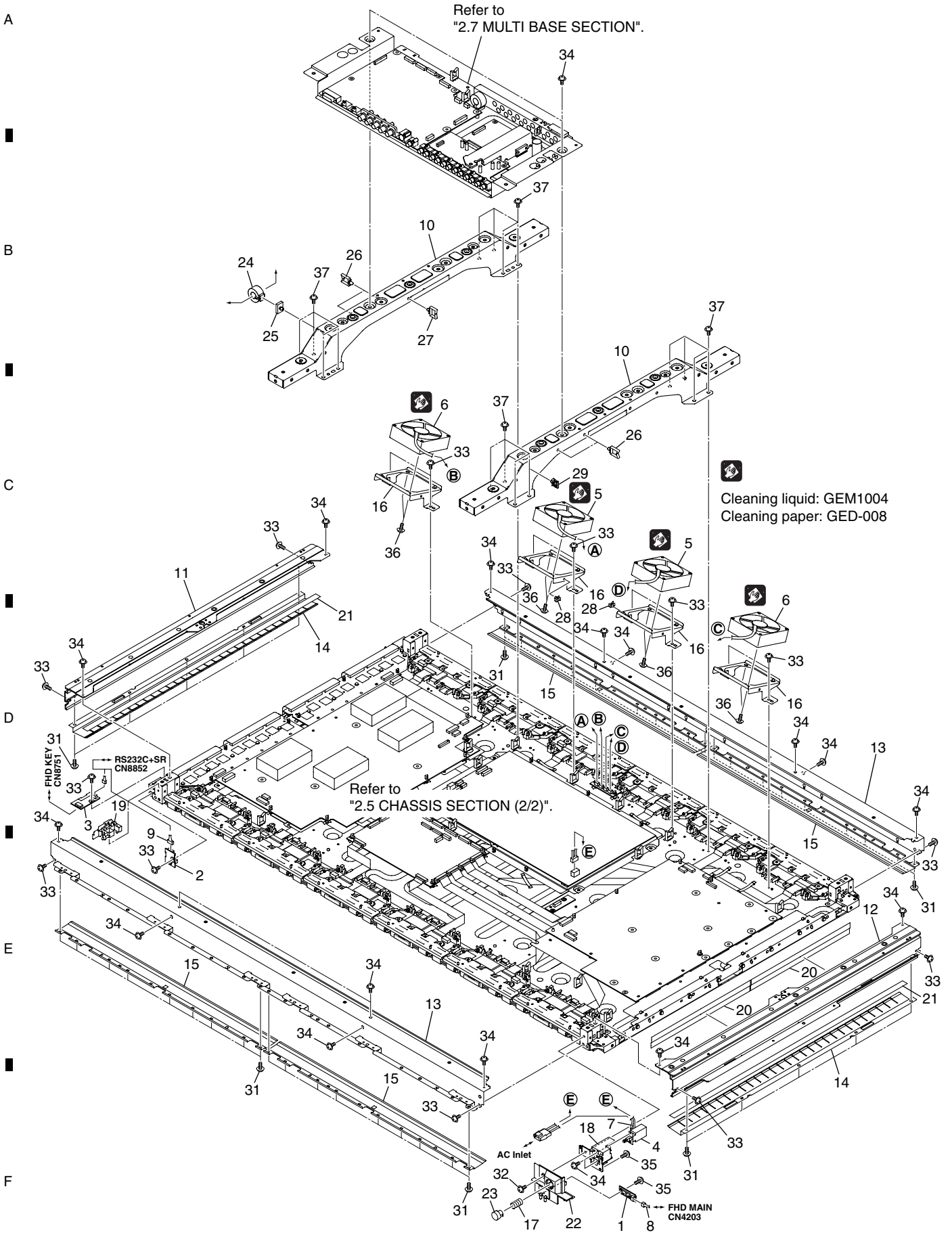
2.3 FRONT SECTION



FRONT SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	FHD KEY Assy	AWW1124
	2	Flexible Cable (J215)	ADD1414
	3	Front Case Assy (50F)	AMB2902
	4	Pioneer Name Plate	AAM1098
	5	Operation Button (50FHD)	AAC1561
	6	Sash T	AAK2883
	7	Sash B	AAK2884
	8	Sash S	AAK2885
	9	Corner Holder L	AAK2889
	10	Corner Holder R	AAK2890
	11	Corner Holder B	AAK2891
	12	•••••	
	13	Nyron Rivet	AEC2086
	14	Screw	APZ30P100FTB

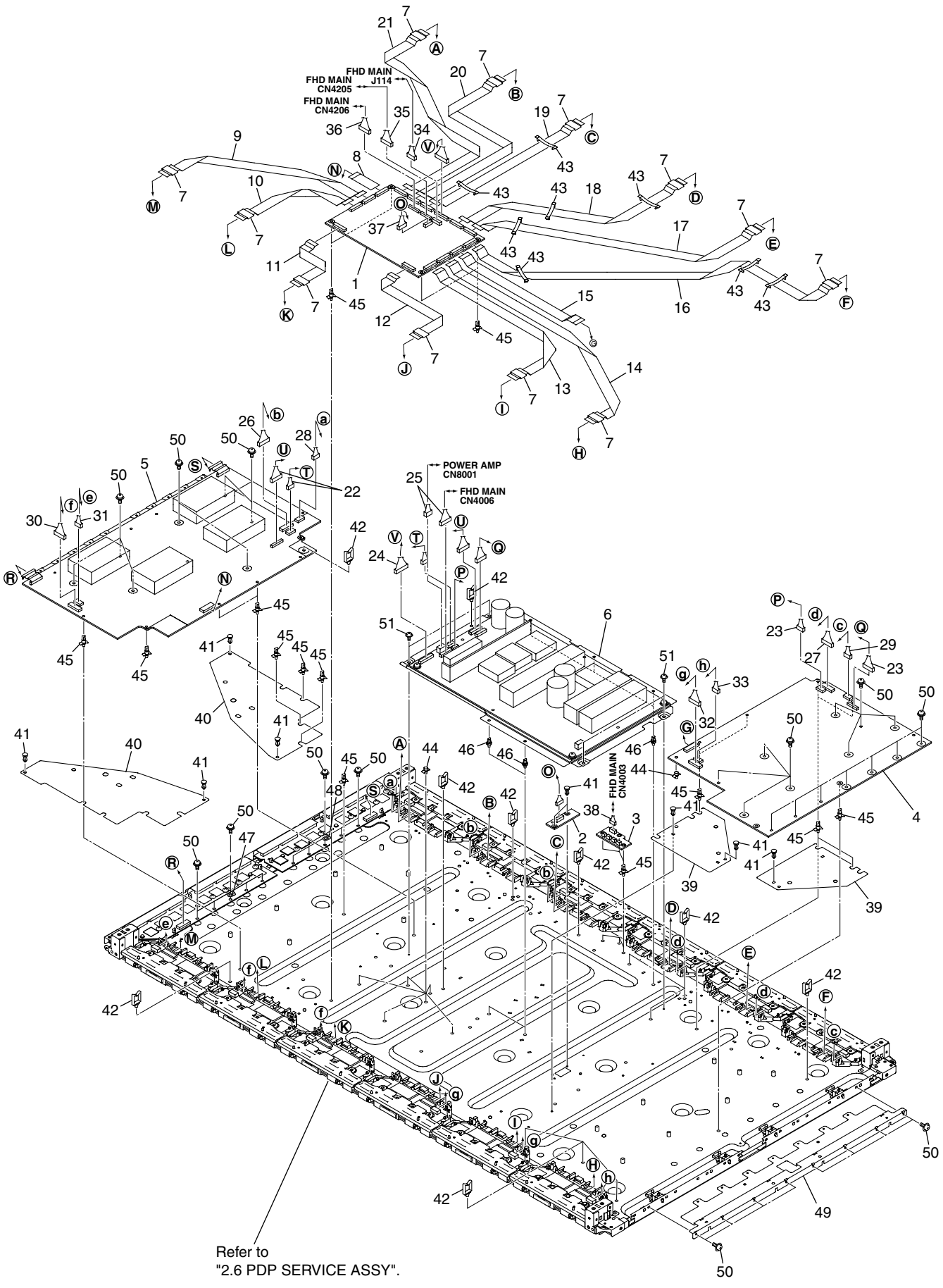
2.4 CHASSIS SECTION (1/2)



CHASSIS SECTION (1/2) PARTS LIST

Mark	No.	Description	Part No.
	1	FHD LED Assy	AWW1121
	2	FHD IR Assy	AWW1123
	3	FHD KEY CONTROL Assy	AWW1125
⚠	4	Power Switch (S1)	ASG1084
	5	Fan Motor 80 x 25L	AXM1055
	6	Fan Motor 80 x 25L	AXM1056
	7	Housing Wire (J103)	ADX3297
	8	3P Housing Wire (J121)	ADX3313
	9	6/4/3P Housing Wire (J124)	ADX3316
	10	Sub Frame (F)	ANA1937
	11	Front Chassis V Assy L	ANA1953
	12	Front Chassis V Assy R	ANA1954
	13	Front Chassis H Assy (F)	ANA1957
	14	Panel Holder V (50)	ANG2663
	15	Panel Holder H Assy (50)	ANG2678
	16	Fan Holder (F)	ANG2908
	17	Coil Spring	ABH1114
	18	SW Holder	AMR3544
	19	IR Holder	AMR3549
	20	Cover	AMR3639
	21	Gasket F	ANK1858
	22	Power Button Holder Assy	AAK2887
	23	Power Button	AAD4127
	24	Ferrite Core	ATX1044
	25	Ferrite Core Holder	AEC1818
	26	Wire Saddle	AEC1745
	27	Wire Saddle	AEC1797
	28	Mini Clamp	AEC2003
	29	Wire Saddle	AEC2031
	30	•••••	
	31	Screw	ABZ30P060FTC
	32	Screw	ABZ30P080FTB
	33	Screw	ABZ30P080FTC
	34	Screw	AMZ30P060FTB
	35	Screw	APZ30P060FTB
	36	Screw	PPZ50P100FTB
	37	Screw	TBZ40P080FTB

2.5 CHASSIS SECTION (2/2)

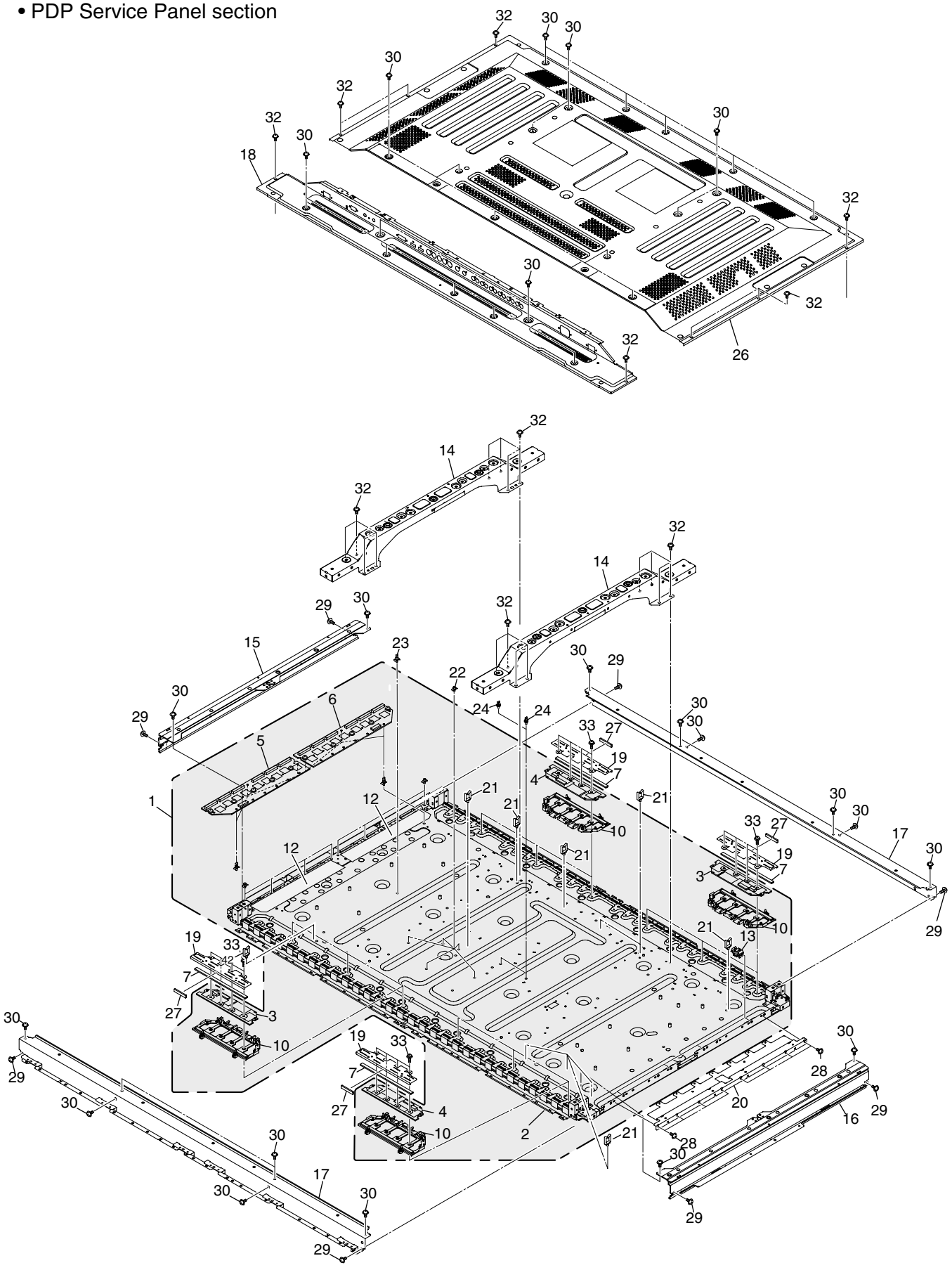


CHASSIS SECTION (2/2) PARTS LIST

Mark	No.	Description	Part No.
	1	FHD DIGITAL Assy	AWW1115
	2	FHD PANEL SENSOR Assy	AWW1116
	3	FHD FAN CONNECT Assy	AWW1122
	4	50FHD X DRIVE Assy	AWV2293
	5	50FHD Y DRIVE Assy	AWV2294
⚠	6	POWER SUPPLY Unit	AXY1148
	7	Ferrite Core	ATX1048
	8	Flexible Cable (J201)	ADD1400
	9	Flexible Cable (J202)	ADD1401
	10	Flexible Cable (J203)	ADD1402
	11	Flexible Cable (J204)	ADD1403
	12	Flexible Cable (J205)	ADD1404
	13	Flexible Cable (J206)	ADD1405
	14	Flexible Cable (J207)	ADD1406
	15	Flexible Cable (J208)	ADD1407
	16	Flexible Cable (J209)	ADD1408
	17	Flexible Cable (J210)	ADD1409
	18	Flexible Cable (J211)	ADD1410
	19	Flexible Cable (J212)	ADD1411
	20	Flexible Cable (J213)	ADD1412
	21	Flexible Cable (J214)	ADD1413
	22	9P&7/6P Housing Wire (J101)	ADX3295
	23	8P&6P Housing Wire (J102)	ADX3296
	24	14P Housing Wire (J104)	ADX3298
	25	11P&3P Housing Wire (J105)	ADX3299
	26	10P/5P Housing Wire (J106)	ADX3301
	27	10P/5P Housing Wire (J107)	ADX3301
	28	5P Housing Wire (J108)	ADX3302
	29	5P Housing Wire (J109)	ADX3302
	30	10P/5P Housing Wire (J110)	ADX3303
	31	5P Housing Wire (J111)	ADX3304
	32	10P/5P Housing Wire (J112)	ADX3305
	33	5P Housing Wire (J113)	ADX3306
	34	7P Housing Wire (J114)	ADX3307
	35	31P Shield Cable (J115)	ADX3308
	36	31P Shield Cable (J116)	ADX3308
	37	5P Housing Wire (J117)	ADX3309
	38	5P Housing Wire (J120)	ADX3312
	39	Drive Sheet X	AMR3636
	40	Drive Sheet Y	AMR3637
	41	Nyron Rivet	AEC1671
	42	Wire Saddle	AEC1745
	43	Flat Clamp	AEC1879
	44	PCB Support	AEC1938
	45	PCB Spacer	AEC1941
	46	PCB Spacer	AEC1947
	47	Earth Lead with Resistor (R2781)	•••••
	48	Earth Lead with Resistor (R2881)	•••••
	49	Conductive Plate X (F)	ANG2906
	50	Screw	ABA1364
	51	Screw	ABZ30P080FTC

2.6 PDP SERVICE ASSY (AWU1198)

• PDP Service Panel section

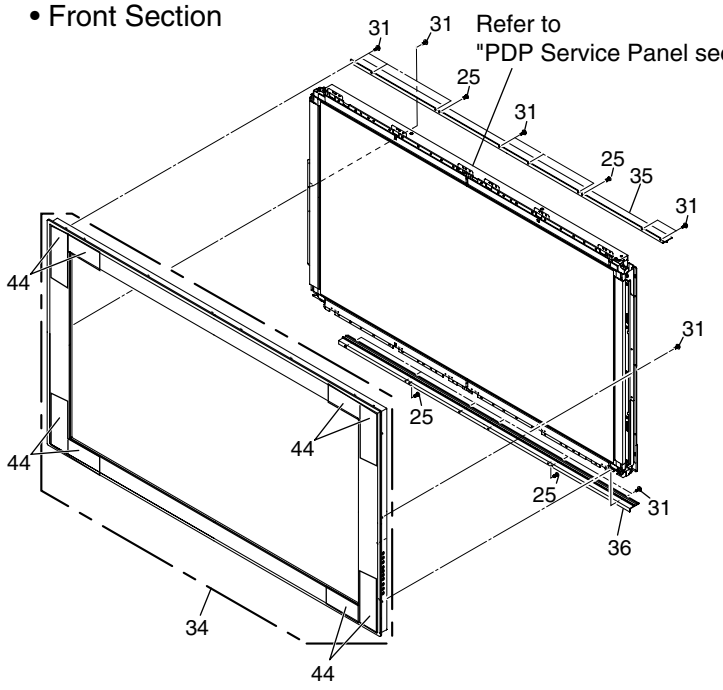


PDP SERVICE ASSY (AWU1198) PARTS LIST

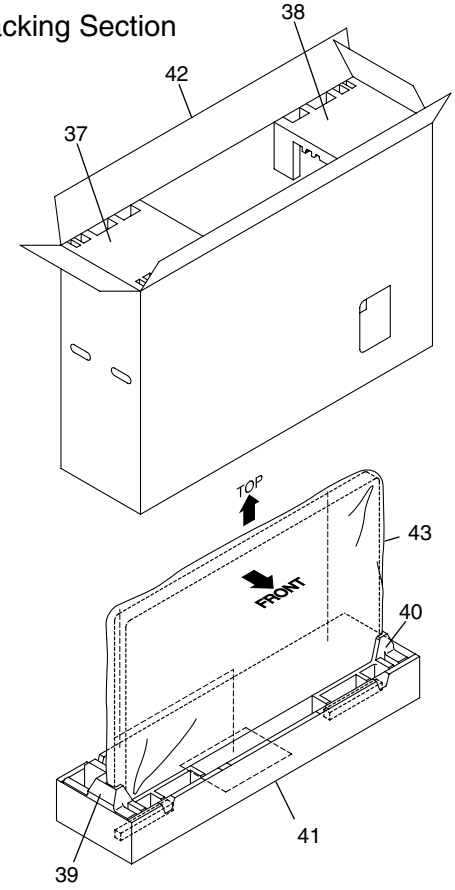
Mark	No.	Description	Part No.
NSP	1	P. Chassis (F) Assy	AWU1201
NSP	2	Plasma Panel (50FH) Assy	AWU1158
NSP	3	50FHD ADDRESS A Assy	AWW1127
NSP	4	50FHD ADDRESS B Assy	AWW1128
	5	50FHD SCAN A Assy	AWW1229
	6	50FHD SCAN B Assy	AWW1230
	7	Address Silicon (F)	AEH1104
	8	•••••	
	9	•••••	
	10	Address Holder Assy (B)	AMR3547
	11	•••••	
	12	SCAN Sheet	AMR3638
	13	Plate Holder	AMR3446
	14	Sub Frame (F)	ANA1937
	15	F Chassis V Assy L	ANA1953
	16	F Chassis V Assy R	ANA1954
	17	Front Chassis Assy (F)	ANA1957
	18	Terminal Panel (F)	ANG2914
	19	Address Heatsink	ANH1651
	20	Plate X (F)	ANG2906
	21	Wire Saddle	AEC1745
	22	PCB Support	AEC1938

Mark	No.	Description	Part No.
	23	PCB Spacer	AEC1941
	24	PCB Spacer	AEC1947
	25	Nylon Livet	AEC2086
	26	Rear Case (F)	ANE1654
	27	Gasket ADH-FCH	ANK1850
	28	Screw	ABA1364
	29	Screw	ABZ30P080FTC
	30	Screw	AMZ30P060FTB
	31	Screw	APZ30P100FTB
	32	Screw	TBZ40P080FTB
	33	Screw	BBB30P120FNI
	34	F.Case Assy S (50F)	AMB2960
	35	Sassi T (Pls)	AAK2883
	36	Sassi B (Pls)	AAK2884
	37	Pad (50T-L)	AHA2546
	38	Pad (50T-R)	AHA2547
	39	Pad (50B-L)	AHA2548
	40	Pad (50B-R)	AHA2549
	41	Under Carton (505)	AHD3326
NSP	42	Upper Carton (505 SVC)	AHD3343
	43	Mirror Mat	AHG1284
	44	Service Pad	AEC2105

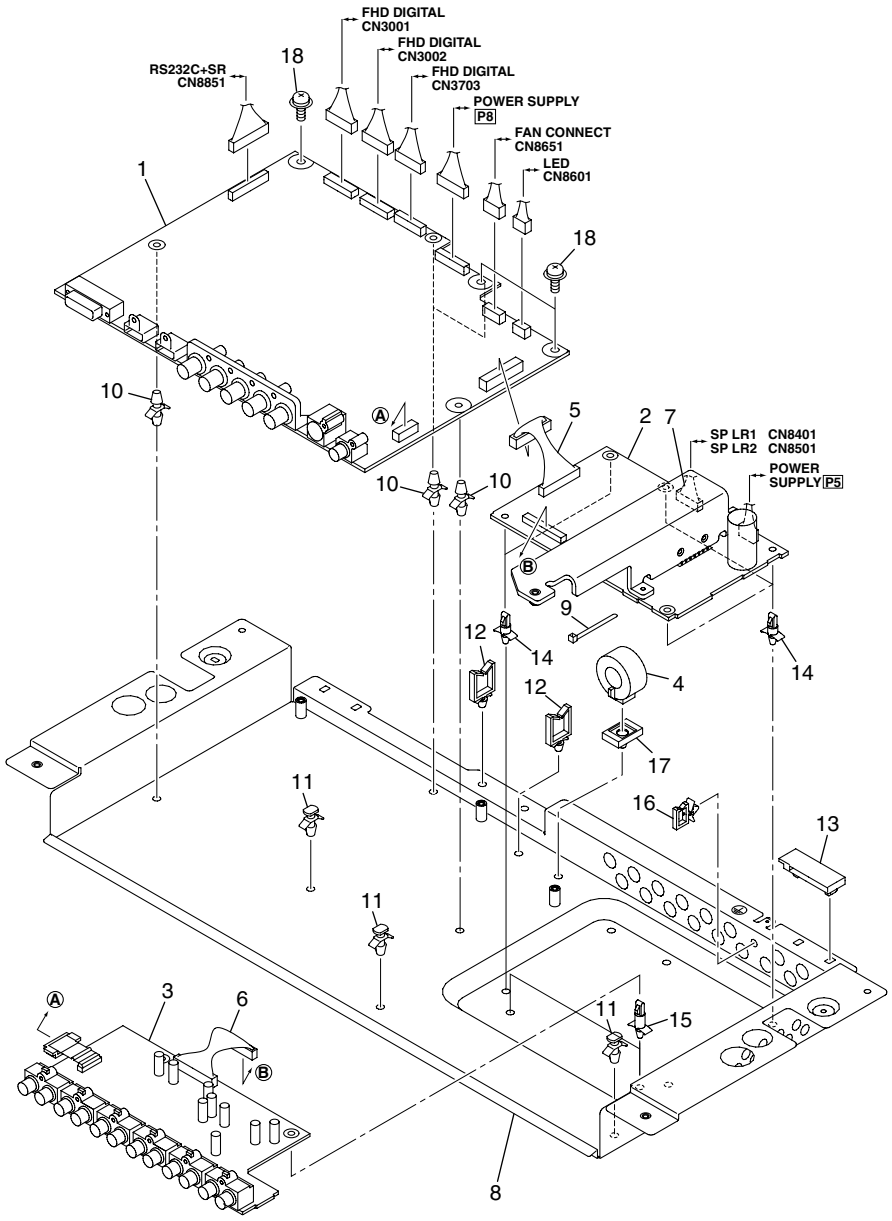
• Front Section



• Packing Section



2.7 MULTI BASE SECTION



MULTI BASE SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	FHD MAIN Assy	AWV2292
	2	FHD POWER AMP Assy	AWW1117
	3	FHD PRE AUDIO Assy	AWW1118
	4	Ferrite Core	ATX1044
	5	14P Housing Wire (J118)	ADX3310
	6	15P Housing Wire (J122)	ADX3314
	7	6P/3P Housing Wire (J123)	ADX3315
	8	Multi Base (F)	ANA1936
	9	Binder	AEC-093
	10	PCB Support	AEC1215
NSP	11	PCB Support	AEC1232
	12	Wire Saddle	AEC1745
	13	Clamp	AEC1884
	14	PCB Spacer	AEC1941
	15	Circuit Board Spacer	AEC1960
	16	Wire Saddle	AEC2031
	17	Ferrite Core Holder	AEC1818
	18	Screw	ABA1364

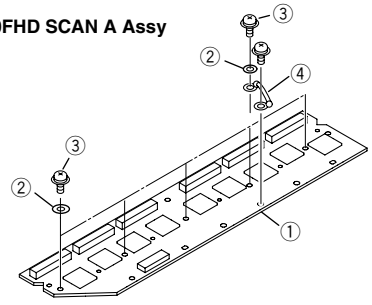
[NOTES ON THE PANEL CHASSIS ASSY]

• There are two (new and old) types of the Panel Chassis Assys.

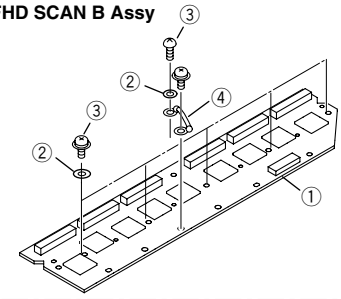
■ Differences in the old and new Panel Chassis Assys

	Panel chassis Assy	① 50FHD SCAN A Assy	① 50FHD SCAN B Assy	② Washer (ABF1040)	③ Heatsink screw	④ Earth lead with resistor (R2781, R2881)	Note
Old	AWU1152	AWW1129	AWW1130	Used	PMH30P080FNI	Used	Although there is a screw with the remove-this-screw mark near the ③ Heatsink screw, never remove this screw.
New	AWU1201	AWW1229	AWW1230	Not used	PMH30P060FNI	Not used	

50FHD SCAN A Assy



50FHD SCAN B Assy



Notes:

① The old type of the Panel Chassis Assys was mounted in about the first 1090 units produced.
(As for PRO-FHD1, the old type of the Panel Chassis Assys was mounted in about the first 10 units produced.)

② Either the old or new type of the SCAN Assy can be attached to a Panel Chassis Assy of the old type.
However, be careful of the following:
- When the old type of the SCAN Assy (50FHD SCAN A Assy: AWW1129, 50FHD SCAN B Assy: AWW1130) is used, a ground wire with resistance is attached. After replacing the SCAN A/B Assy, be sure to secure the ground wire with resistance as it was originally. (Be careful not to mix up the washers.)
- When the new type of the SCAN Assy (50FHD SCAN A Assy: AWW1229, 50FHD SCAN B Assy: AWW1230) is used, a ground wire with resistance is not attached. Attaching a ground wire with resistance is not required after replacement of the SCAN Assy.

3. PCB PARTS LIST

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω	→ *56 x 10¹* →	*561*	*RD1/4PU 5 6 1 J*
47k Ω	→ *47 x 10³* →	*473*	*RD1/4PU 4 7 3 J*
0.5 Ω	→	*R50*	*RN2H R 5 0 K*
1 Ω	→	*1R0*	*RS1P 1 R 0 K*

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω	→ *562 x 10¹* →	*5621*	*RN1/4PC 5 6 2 1 F*

LIST OF ASSEMBLIES

Mark	No.	Description	Part No.
NSP	1	.50 FHD ADDRESS ASSY	AWV2295
NSP	2	.50FHD ADDRESS A ASSY	AWW1127
NSP	2	.50FHD ADDRESS B ASSY	AWW1128
NSP	1	.50FHD SCAN ASSY	AWV2401
	2	.50FHD SCAN A ASSY	AWW1229
	2	.50FHD SCAN B ASSY	AWW1230
NSP	1	.DIGITAL SENSOR ASSY	AWV2290
	2	.FHD DIGITAL ASSY	AWW1115
	2	.PANEL SENSOR ASSY	AWW1116
NSP	1	.FHD FUKUGO ASSY	AWV2291
	2	.FHD POWER AMP ASSY	AWW1117
	2	.FHD PRE AUDIO ASSY	AWW1118
	2	.FHD SP LR1 ASSY	AWW1119
	2	.FHD SP LR2 ASSY	AWW1120
	2	.FHD LED ASSY	AWW1121
	2	.FHD FAN CONNECT ASSY	AWW1122
	2	.FHD IR ASSY	AWW1123
	2	.FHD KEY ASSY	AWW1124
	2	.FHD KEY CONTROL ASSY	AWW1125
	2	.FHD RS232C+SR ASSY	AWW1126
	1	.FHD MAIN ASSY	AWV2292
	1	.50FHD X DRIVE ASSY	AWV2293
	1	.50FHD Y DRIVE ASSY	AWV2294

Unit Name: 50FHD SCAN A ASSY

Mark	No.	Description	Part No.
SEMICONDUCTORS			
IC	2701-2709		SN755870KPZT-P
D	2701		1SS355
D	2702-2707		1SS302
MISCELLANEOUS			
CN2701		13P CONNECTER	AKP1261
CN2702-2707		90PIN CONNECTOR	AKM1358
RESISTORS			
R	2705,2710,2713,2716		RAB4C221J
R	2719,2722,2725,2728		RAB4C221J
R	2731		RAB4C221J
R	2791		RS1/8SQ104J
R	2792		RS1/8SQ124J
Other Resistors			RS1/16S###J
CAPACITORS			
C	2701,2702,2711,2712		ACG1088
C	2703,2713,2723,2733		CKSRYB105K6R3
C	2704,2706,2707,2714		CCSRCH390J50
C	2708-2710,2718-2720		CCSRCH181J50
C	2716,2717,2724,2726		CCSRCH390J50
C	2721,2722,2731,2732		ACG1088
C	2727,2734,2736,2737		CCSRCH390J50
C	2728-2730,2738-2740		CCSRCH181J50
C	2741,2742,2751,2752		ACG1088
C	2743,2753,2763,2773		CKSRYB105K6R3
C	2744,2746,2747,2754		CCSRCH390J50
C	2748-2750,2758-2760		CCSRCH181J50
C	2756,2757,2764,2766		CCSRCH390J50
C	2761,2762,2771,2772		ACG1088
C	2767,2774,2776,2777		CCSRCH390J50
C	2768-2770,2778-2780		CCSRCH181J50
C	2781,2782		ACG1088
C	2783		CKSRYB105K6R3
C	2784,2786,2787		CCSRCH390J50
C	2788-2790		CCSRCH181J50

Unit Name: 50FHD SCAN B ASSY

Mark	No.	Description	Part No.
SEMICONDUCTORS			
IC	2801-2809		SN755870KPZT-P
D	2801		1SS355
D	2802-2807		1SS302
MISCELLANEOUS			
CN2801		13P CONNECTER	AKP1261
CN2802-2807		90PIN CONNECTOR	AKM1358
RESISTORS			
R	2805,2810,2813,2816		RAB4C221J
R	2819,2822,2825,2828		RAB4C221J
R	2831		RAB4C221J
R	2891		RS1/8SQ104J
R	2892		RS1/8SQ124J
Other Resistors			RS1/16S###J
CAPACITORS			
C	2801,2802,2811,2812		ACG1088
C	2803,2813,2823,2833		CKSRYB105K6R3
C	2805-2807,2815-2817		CCSRCH390J50
C	2808-2810,2818-2820		CCSRCH181J50
C	2821,2822,2831,2832		ACG1088

Mark No.	Description	Part No.
C	2825-2827,2835-2837	CCSRCH390J50
C	2828-2830,2838-2840	CCSRCH181J50
C	2841,2842,2851,2852	ACG1088
C	2843,2853,2863,2873	CKSRYB105K6R3
C	2845-2847,2855-2857	CCSRCH390J50
C	2848-2850,2858-2860	CCSRCH181J50
C	2861,2862,2871,2872	ACG1088
C	2865-2867,2875-2877	CCSRCH390J50
C	2868-2870,2878-2880	CCSRCH181J50
C	2881,2882	ACG1088
C	2883	CKSRYB105K6R3
C	2885-2887	CCSRCH390J50
C	2888-2890	CCSRCH181J50

Unit Name: 50FHD ADDRESS A ASSY

• Block Name: ADR RESONANCE BLOCK

SEMICONDUCTORS

IC	1601	TND307TD
Q	1601-1605	HAT3041R
Q	1606,1607	QSZ2
Q	1608	2SA1163
Q	1609,1610	RN1901
D	1601,1605,1609,1613	EP05FA20
D	1603,1607,1611,1615	UDZS15(B)
D	1604,1608,1612,1616	1SS355
D	1617	EP05FA20
D	1619	UDZS15(B)
D	1620	1SS355
D	1621	1SS302

MISCELLANEOUS

L	1601-1605	ATH1199

RESISTORS

R	1622,1623	RS1/16SS330J
Other Resistors		RS1/16S###J

CAPACITORS

C	1601,1603,1605,1607	ACG1135
C	1602,1604,1606,1608	ACG1136
C	1609	ACG1135
C	1610	ACG1136
C	1611	ACG1098
C	1612	CKSYB105K16

• Block Name: ADR LOGIC BLOCK

SEMICONDUCTORS

IC	1501	PEE002A

MISCELLANEOUS

L	1501	QTL1013
CN1501		AKM1276
CN1502		AKM1348

RESISTORS

R	1501-1505	RS1/16SS1000F
R	1535,1536	RS1/16S0R0J
Other Resistors		RS1/16SS###J

Mark No.	Description	Part No.
C	1501-1504,1507	CKSSYF104Z16
C	1505,1506	CKSSYB102K50
C	1508,1509	CKSRYB105K6R3
C	1510	CCSSCH101J50
C	1512,1514	CCSSCH470J50

• Block Name: ADR CONNECT BLOCK

RESISTORS

All Resistors		RS1/16SS###J

CAPACITORS

C	1551-1555	CKSSYF104Z16

Unit Name: 50FHD ADDRESS B ASSY

• Block Name: ADR RESONANCE BLOCK

SEMICONDUCTORS

IC	1801	TND307TD
Q	1801-1805	HAT3041R
Q	1806,1807	QSZ2
Q	1808	2SA1163
Q	1809,1810	RN1901
D	1801,1805,1809,1813	EP05FA20
D	1803,1807,1811,1815	UDZS15(B)
D	1804,1808,1812,1816	1SS355
D	1817	EP05FA20
D	1819	UDZS15(B)
D	1820	1SS355
D	1821	1SS302

MISCELLANEOUS

L	1801-1805	ATH1199

RESISTORS

R	1822,1823	RS1/16SS330J
Other Resistors		RS1/16S###J

CAPACITORS

C	1801,1803,1805,1807	ACG1135
C	1802,1804,1806,1808	ACG1136
C	1809	ACG1135
C	1810	ACG1136
C	1811	ACG1098
C	1812	CKSYB105K16

• Block Name: ADR LOGIC BLOCK

SEMICONDUCTORS

IC	1701	PEE002A

MISCELLANEOUS

L	1701	QTL1013
CN1701		AKM1276
CN1702		AKM1348

RESISTORS

R	1701-1705	RS1/16SS1000F
R	1735,1736	RS1/16S0R0J
Other Resistors		RS1/16SS###J

Mark	No.	Description	Part No.
		CAPACITORS	
	C	1701-1704,1707	CKSSYF104Z16
	C	1705,1706	CKSSYB102K50
A	C	1708,1709	CKSRYB105K6R3
	C	1710	CCSSCH101J50
	C	1712,1714	CCSSCH470J50
		• Block Name: ADR CONNECT BLOCK	
		RESISTORS	
		All Resistors	RS1/16SS###J
		CAPACITORS	
	C	1751-1755	CKSSYF104Z16

B

Unit Name: 50 FHD Y DRIVE ASSY

		MISCELLANEOUS	
		2001	ANH1639
		2002	BMZ30P080FTC
		2003	AEH1092
		2004	ANG2907
		2005	ABA1364
		• Block Name: Y LOGIC BLOCK	
C		**SEMICONDUCTORS**	
	IC	2001,2007	TC74ACT541FT
	IC	2003,2004	TC74ACT540FT
	IC	2005,2006	TC74VHC08FTS1
	D	2090,2091	1SS355
		MISCELLANEOUS	
	K	2010,2014 TEST PIN	AKX1061
	VR	2010,2011	CCP1390
	CN	2001 40P CONNECTER	AKM1348
		RESISTORS	
D	R	2001,2003,2016,2022	RAB4C470J
	R	2002,2004	RAB4C101J
	R	2005,2006,2017,2026	RAB4C472J
	R	2023	RAB4C470J
	R	2027	RAB4C472J
		Other Resistors	RS1/16S###J
		CAPACITORS	
	C	2001,2009	CEHAT470M16
	C	2002,2004-2008	CKSRYB104K16
	C	2010,2011	CCSRCH331J50
E		**• Block Name: Y RESONANCE BLOCK**	
		SEMICONDUCTORS	
	IC	2101,2104	TND307TD
	IC	2102	PS9117
	IC	2103,2151	AXF1159
	IC	2181	BA10393F
	Q	2101	2SC2412K
	Q	2102,2103,2151,2152	QSZ2
	Q	2181	2SC4081
	D	2101	UDZS5R6(B)
F	D	2105,2154	D1FL40
	D	2110,2159	1SS302

Mark	No.	Description	Part No.
		MISCELLANEOUS	
	L	2101,2151	ATH1201
	L	2102,2152	ATH1204
		RESISTORS	
	R	2109,2118,2152,2161	RS1/10S2R2J
	R	2113,2156	ACN1174
	R	2114,2115,2157,2158	RS3LMF100J
	R	2116,2117,2159,2160	RS1/10S104J
	R	2121	RS1/16S3300F
	R	2181,2184	RS1/10S1003F
	R	2182,2185	RS1/16S5601F
	R	2186,2187	RS1/16S6801F
		Other Resistors	RS1/16S###J
		CAPACITORS	
	C	2101,2181-2184	CKSRYB104K16
	C	2102,2113,2162,2164	CEHAT470M25
	C	2103,2114	CKSRYF104Z50
	C	2104,2117,2151,2163	CKSYB105K25
	C	2107,2108,2154,2155	CCG1186
	C	2115,2116,2160,2161	ACG1112
	C	2118-2121,2186-2189	ACE1168
	C	2185	CKSRYB105K10
		• Block Name: Y SUS BLOCK	
		SEMICONDUCTORS	
	IC	2202,2221,2232,2242	PS9117
	IC	2203,2211,2222,2231	TND307TD
	IC	2241,2252	TND307TD
	IC	2251	TC7SH04FUS1
	IC	2271	TND301S
	IC	2301,2302	AXF1161
	IC	2351	PQ05DZ11
	IC	2380	PQ09DZ11
	Q	2211	2SK3325
	Q	2221,2232,2242,2243	QSZ2
	Q	2222,2231,2241,2352	2SC4081
	Q	2239,2271	2SK3050
	Q	2240	2SC2412K
	Q	2251	QSZ2
	Q	2281-2283	2SK3399
	Q	2290	DTC123TKA
	Q	2291	DTC143EK
	Q	2351	HN1B04FU
	D	2208,2221,2231,2241	UDZS5R6(B)
	D	2222,2223,2232,2233	CRH01
	D	2242,2243,2281,2282	CRH01
	D	2251	UDZS5R1(B)
	D	2271	1SS301
	D	2272	UDZS16(B)
	D	2283,2289	UDZS9R1(B)
	D	2290	UDZS8R2(B)
	D	2351,2380	1SS355
		MISCELLANEOUS	
	L	2351,2353,2354	BTH1134
	L	2352,2355,2356	ATH1186
	F	2301-2330	ATX1062
	F	2351	CTF1449
	K	2301,2351 TEST PIN	AKX1061

Mark No.	Description	Part No.
KN2202-2208,2301-2307		ANK1841
CN2351	CONNECTOR	B9B-EH
CN2353	CONNECTOR	AKM1277
CN2354,2356	CONNECTOR	AKM1281
CN2355,2357	CONNECTOR	AKM1276

RESISTORS

R 2202,2206		RS3LMF561J
R 2211,2214		RS3LMF3R9J
R 2275		RS3LMF181J
R 2288-2293		RS3LMF5R6J
R 2301,2303,2307,2308		RS1/10S100J
R 2302,2304		RS1/10S0R0J
R 2305,2311		ACN1168
R 2351		ACN1162
Other Resistors		RS1/16S###J

CAPACITORS

C 2211,2223,2233,2243		CEHAT470M25
C 2212,2272		CKSRYF104Z50
C 2221,2231,2241,2253		CKSYB105K25
C 2222,2232,2242,2290		CKSRYB104K16
C 2251		CCSRCH331J50
C 2252,2362		CKSRYB105K10
C 2256,2271,2291,2352		CEHAT470M25
C 2273,2281		CEHAT2R2M2E
C 2284,2286		ACE1163
C 2292		CKSYB105K25
C 2299		CKSRYB104K25
C 2301,2305		ACH1445
C 2302-2304,2306-2308		ACE1180
C 2309,2310		CCG1186
C 2351,2353,2361,2363		CEHAT470M16
C 2354,2359,2364,2380		CKSRYB104K16
C 2356,2357		ACH1449
C 2358		CEHAT101M10
C 2360		CKSRYB473K16
C 2367,2368		CEHAT101M25
C 2369		CEHAT470M16
C 2381		CKSRYB104K16

• Block Name: Y SCAN BLOCK

SEMICONDUCTORS

IC 2401,2403,2409		TLP116
IC 2402,2407,2421,2490		TC74AC540FT
IC 2404-2406,2408,2410		PS9117
IC 2481,2482		PST3638UR

MISCELLANEOUS

L 2401		BTH1136
L 2402,2403		BTH1134
F 2401,2402		ATX1062
CN2401,2402	15P CONNECTER	AKM1200

RESISTORS

R 2405,2417		RAB4C220J
Other Resistors		RS1/16S###J

CAPACITORS

C 2401,2407,2414		CEHAT101M10
C 2402,2403,2405,2406		CKSRYB104K16
C 2404,2411		ACH1413
C 2408-2410,2412,2413		CKSRYB104K16
C 2415,2420,2421		CKSRYB104K16

Mark No.	Description	Part No.
C 2417,2418		ACE1181
C 2481,2482		CKSRYB102K50

• Block Name: Y VH DD CON BLOCK

SEMICONDUCTORS

IC 2501,2551		MIP2E3DMU
IC 2502,2552		PS2701A-1(L)
IC 2508,2557		TA76431FR
IC 2553		BA10358F
Q 2501		HN1C01FU
Q 2551		2SC2412K
D 2501		U1ZB330
D 2502		D1FL40
D 2503,2505,2555,2556		CRH01
D 2504,2551,2552,2554		CRF03
D 2506		UDZS6R2(B)
D 2507		UDZS12(B)
D 2558		1SS355
D 2559		UDZS4R7(B)

MISCELLANEOUS

VR2501		CCP1390
VR2551		CCP1392
T 2501		ATK1158
T 2551		ATK1153

RESISTORS

R 2509		RAB4C472J
R 2551,2552		RS1/10S1803F
R 2554		RS1/10S2203F
R 2557,2560		RS1/16S5601F
R 2564		RS1/16S1002F
R 2565		RS1/16S2202F
R 2566		RS1/16S4702F
R 2567		RS1/16S6801F
R 2568-2570		RS1/10S224J
Other Resistors		RS1/16S###J

CAPACITORS

C 2502,2507,2553,2561		CKSRYB104K16
C 2503,2554		CEHAT101M16
C 2505,2555		CEHAT101M25
C 2506		ACH1450
C 2508		CEHAT221M16
C 2509		CEHAT470M25
C 2551		ACH1448
C 2552		ACH1451
C 2556		CKSRYF104Z50
C 2557,2559,2560		CKSRYB104K25
C 2558		CEHAT221M25
C 2562		CCG1186

• Block Name: Y DD CON BLOCK

SEMICONDUCTORS

IC 2601		PS2701A-1(L)
IC 2605,2657		TA76431FR
IC 2651		MIP2E3DMU
IC 2652,2654,2658		TLP181(P-GR)
IC 2653		BA10358F

Mark	No.	Description	Part No.
	Q	2601,2681	2SD1898
	Q	2602	2SA1576A
	Q	2603,2684	HN1C01FU
A	Q	2604,2605,2685	DTC143EUA
	Q	2651	2SA2005
	Q	2652	2SA1163
	Q	2682,2683	2SC4081
	D	2602,2651,2654,2656	CRH01
	D	2603,2684	1SS301
	D	2604,2606,2658,2659	1SS355
	D	2607,2608	UDZS4R7(B)
	D	2653	CRF03
	D	2682,2683	CRH01
	D	2685,2689	UDZS5R6(B)
B	D	2686-2688	1SS355
	D	2690	UDZS15(B)

MISCELLANEOUS

	VR	2651	CCP1390
	T	2601	ATK1156
	T	2651	ATK1163
	T	2681	ATK1162

RESISTORS

	R	2610,2613,2662,2666	RS1/16S4701F
C	R	2615	RAB4C472J
	R	2651	RS1/10S4702F
	R	2653,2660	RS1/10S1501F
	R	2654,2691	RS3LMF301J
	R	2661	RS1/16S1002F
	R	2667	RS1/16S4701F
	R	2668-2670,2690	RS1/10S224J
	R	2694	RS1/16S5601F
	R	2698	RS1/16S6801F
		Other Resistors	RS1/16S###J

CAPACITORS

D	C	2602,2681,2686	CEHAT101M25
	C	2603,2685	ACG1105
	C	2604	CKSRYB102K50
	C	2605	CEHAT221M10
	C	2606,2607,2653,2684	CKSRYB104K16
	C	2652	ACH1449
	C	2654	CEHAT101M16
	C	2655,2660	CKSRYF104Z50
	C	2656,2657	CEHAT221M35
	C	2658	CKSRYB104K25
E	C	2659	CKSRYB105K10
	C	2661	CCG1186
	C	2682	CKSYB105K25
	C	2683	CKSRYB103K50
	C	2687,2688	CKSRYB104K16

Unit Name: 50 FHD X DRIVE ASSY

MISCELLANEOUS

		1001	BMZ30P080FTC
F		1001	ANH1639
		1002	AEH1092

Mark	No.	Description	Part No.

• Block Name: X LOGIC BLOCK

SEMICONDUCTORS

	IC	1001	TC74ACT541FT
	IC	1002	TC74ACT540FT
	IC	1003	TC74VHC00FTS1
	D	1001,1002	1SS355

MISCELLANEOUS

	VR	1001,1002	CCP1390
	S	1001	ASH1047
	CN	1001 40P CONNECTER	AKM1348

RESISTORS

	R	1001,1003,1009	RAB4C470J
	R	1005,1006,1011	RAB4C472J
		Other Resistors	RS1/16S###J

CAPACITORS

	C	1001,1003	CEHAT470M16
	C	1002,1004,1005	CKSRYB104K16
	C	1006,1007	CCSRCH331J50

• Block Name: X RESONANCE BLOCK

SEMICONDUCTORS

	IC	1101,1104	TND307TD
	IC	1102	PS9117
	IC	1103,1131	AXF1159
	IC	1151	BA10393F
	Q	1101	2SC2412K
	Q	1102,1103,1131,1132	QSZ2
	Q	1151	2SC4081
	D	1101	UDZS5R6(B)
	D	1106,1135	D1FL40
	D	1112,1141	1SS302

MISCELLANEOUS

	L	1101,1131	ATH1201
	L	1102,1132	ATH1204

RESISTORS

	R	1109,1118,1132,1141	RS1/10S2R2J
	R	1112,1135	ACN1174
	R	1114,1117,1137,1140	RS3LMF100J
	R	1115,1116,1138,1139	RS1/10S104J
	R	1121	RS1/16S3300F
	R	1151,1154	RS1/10S1003F
	R	1152,1155	RS1/16S5601F
	R	1156,1157	RS1/16S6801F
		Other Resistors	RS1/16S###J

CAPACITORS

	C	1101,1151,1153	CKSRYB104K16
	C	1102,1113,1131,1143	CEHAT470M25
	C	1103,1114	CKSRYF104Z50
	C	1104,1117,1132,1144	CKSYB105K25
	C	1106,1108,1135,1136	CCG1186
	C	1115,1116,1141,1142	ACG1112
	C	1118-1121,1156-1159	ACE1168
	C	1154	CKSSYB104K10
	C	1155	CKSRYB105K10

Mark	No.	Description	Part No.
• Block Name: X SUS BLOCK			
SEMICONDUCTORS			
IC	1201,1206		PS9117
IC	1202,1207,1208,1210		TND307TD
IC	1203,1205		AXF1160
IC	1204		PQ05DZ11
IC	1209		TC7SH04FUS1
IC	1211		PQ09DZ11
Q	1201		2SC2412K
Q	1202,1205,1208,1209		QSZ2
Q	1203		HN1B04FU
Q	1204		DTC124EUA
Q	1206		2SC4081
Q	1207		R5009ANJ
Q	1251		DTC143EK
Q	1252		DTC123TKA
D	1201,1205		UDZS5R6(B)
D	1202,1203,1206,1210		CRH01
D	1204,1211		1SS355
D	1207		1SS302
D	1208		UDZS5R1(B)
D	1209		UDZS16(B)
D	1251		UDZS8R2(B)
MISCELLANEOUS			
L	1201-1203		BTH1134
L	1204-1206		ATH1186
F	1201		CTF1449
K	1201		AKX1061
KN	1201-1207,1210-1217		ANK1841
CN	1201,1203	CONNECTER	AKM1281
CN	1202,1205	CONNECTER	AKM1276
CN	1204	CONNECTER	AKM1277
CN	1206	CONNECTER	B8B-EH
RESISTORS			
R	1210,1226,1253,1254		RS1/10S100J
R	1212		ACN1166
R	1217,1232		RS1/10S0R0J
R	1220,1237		ACN1168
R	1222		RS3LMF180J
Other Resistors			RS1/16S###J
CAPACITORS			
C	1201,1211-1213,1238		CKSRYF104Z50
C	1202,1231,1237		CKSYB105K25
C	1203,1204		ACH1449
C	1207,1216,1218,1219		CKSRYB104K16
C	1208,1214,1246		CEHAT470M16
C	1209,1215,1217,1233		CEHAT470M25
C	1210,1240,1244		CEHAT101M25
C	1221,1222		ACG1126
C	1223,1224		ACH1445
C	1225-1230		ACE1180
C	1232,1245,1250,1251		CKSRYB104K16
C	1235		CEHAT2R2M2E
C	1236		CKSRYB105K10
C	1239		CCSRCH331J50
C	1241-1243		CEHAT470M25
C	1252		CKSRYB104K25

Mark	No.	Description	Part No.
• Block Name: X DD CON BLOCK			
SEMICONDUCTORS			
IC	1321		MIP2E3DMU
IC	1322		PS2701A-1(L)
IC	1327		TA76431FR
Q	1301		2SD1898
Q	1302		2SC4081
Q	1331,1332		HN1C01FU
D	1301,1324		D1FL40
D	1302,1303,1325,1326		CRH01
D	1304		1SS301
D	1305		UDZS5R6(B)
D	1306,1307,1331		1SS355
D	1321,1322		CRF03
D	1323		U1ZB330
D	1332,1333		UDZS8R2(B)
MISCELLANEOUS			
VR	1321		CCP1392
T	1301		ATK1162
T	1321		ATK1153
RESISTORS			
R	1321,1322		RS1/10S2203F
R	1328		RS1/16S5601F
R	1331		RAB4C472J
Other Resistors			RS1/16S###J
CAPACITORS			
C	1301,1306,1326		CEHAT101M25
C	1302,1325		CKSYB105K25
C	1303		CKSRYB103K50
C	1304,1307,1323		CKSRYB104K16
C	1305		ACG1105
C	1321		ACH1361
C	1322		ACH1452
C	1324		CEHAT101M16
C	1327		CKSRYB104K25
C	1328		CEHAT221M25

Unit Name: FHD MAIN ASSY

Mark	No.	Description	Part No.
SEMICONDUCTORS			
IC	4803		AGC1005
IC	5005		AGC1012
IC	6203		AGC1013
MISCELLANEOUS			
• Block Name: BOARD IF A BLOCK			
SEMICONDUCTORS			
IC	4006		THC63LVD103F
Q	4001		DTA124EUA
Q	4002		2SA1586
D	4001,4003		1SS355
D	4002		1SS301
MISCELLANEOUS			
⚠F	4001,4003,4004		CCG1162
⚠F	4005-4010		ATF1209
CN	4003	CONNECTOR	AKM1276

Mark	No.	Description	Part No.
		RESISTORS	
	R	4001,4002,4025,4026	RS1/10S0R0J
	R	4094	RS1/10S0R0J
	Other Resistors		RS1/16SS###J
		CAPACITORS	
	C	4001	ACG7046
	C	4002,4003	CEHVKW470M16
	C	4008-4012	CKSSYF104Z16
	C	4014	CKSSYB103K16
		• Block Name: BOARDIF B BLOCK	
		SEMICONDUCTORS	
	IC	4206	THC63LVD103F
	Q	4201	DTC124EUA
	Q	4203	RN2901
		MISCELLANEOUS	
⚠	F	4201-4206	ATF1209
⚠	F	4207	CCG1162
⚠	F	4208-4210	CTF1410
	CN4203	CONNECTOR	AKM1274
	CN4205,4206	31P CONNECTER	AKM1239
	CN4207	CONNECTOR	AKM1278
	All Resistors		RS1/16SS###J
		CAPACITORS	
	C	4201	ACG7046
	C	4207-4211	CKSSYF104Z16
		• Block Name: REG BLOCK	
		SEMICONDUCTORS	
	IC	4401,4402	MM1661JH
	IC	4403	PQ090DNA1ZPH
	IC	4404	PQ033ENA1ZPH
	IC	4405	PQ050DNA1ZPH
	IC	4407,4409	BD6522F
	IC	4408	NCP1117STT15
	IC	4410	NCP1117STT18
	Q	4401	DTC124EUA
	D	4401-4404,4406-4408	1SS355
	D	4410	1SS355
		MISCELLANEOUS	
⚠	F	4401,4402	CCG1162
	U	4401	AXY1136
		RESISTORS	
	R	4401,4428	RS1/10S1R5J
	R	4403-4406,4410,4429	RS1/10S0R0J
	Other Resistors		RS1/16SS###J
		CAPACITORS	
	C	4401,4402	CKSSYB471K50
	C	4403	CKSRYB105K10
	C	4404,4414,4443,4444	CKSSYF104Z16
	C	4405,4420,4427,4431	DCH1165
	C	4406,4422,4432,4433	ACG7046
	C	4419,4425,4430,4436	DCH1201
	C	4439,4442,4445-4447	ACG7046
	C	4449	ACG7046

Mark	No.	Description	Part No.
		• Block Name: VIDEO SW BLOCK	
		SEMICONDUCTORS	
	IC	4601	R2S11002AFT
	Q	4601,4602	2SA1586
		MISCELLANEOUS	
	JA4601	JACK	VKB1156
	CN4601	DIN SOCKET AU	AKP1298
		RESISTORS	
	R	4609,4610	RS1/16S5600F
	R	4612,4614	RS1/16S1800F
	R	4616,4631,4632	RS1/16S75R0F
	Other Resistors		RS1/16SS###J
		CAPACITORS	
	C	4601-4610	CKSRYB105K10
	C	4611,4612	CKSSYB103K16
	C	4613	CEHVKW101M6R3
	C	4621,4627,4628,4657	CKSSYF104Z16
	C	4622	DCH1201
	C	4623,4626	CKSSYB104K10
	C	4632	ACG7046
	C	4647	CKSSYB473K16
	C	4653	ACG1122
	C	4658	DCH1165
		• Block Name: IF UCOM BLOCK	
		SEMICONDUCTORS	
	IC	4801	PST9230N
	IC	4802	TC7W126FU
	IC	4804	TC74VHC08FTS1
		MISCELLANEOUS	
	X	4801	ASS1168
	X	4802	ASS1172
		RESISTORS	
	R	4850-4853	RAB4CQ103J
	Other Resistors		RS1/16SS###J
		CAPACITORS	
	C	4801	CKSSYB472K25
	C	4802,4803	CCSSCH180J50
	C	4805	ACG7046
	C	4806-4811	CKSSYF104Z16
		• Block Name: MAIN UCOM BLOCK	
		SEMICONDUCTORS	
	IC	5001	BR24L64F-W
	IC	5002	MB91305PMC-G-BND
	IC	5003	PQ200WNA1ZPH
	IC	5006	PST3628UR
	IC	5007	TC74VHC125FTS1
	IC	5008	NJM12904V
	Q	5001	2SJ461A
	Q	5003,5004	HN1K02FU
	Q	5007	2SC4116
	D	5001	1SS355
	D	5002	SML-311UT

Mark	No.	Description	Part No.
MISCELLANEOUS			
	X	5001	CSS1616
	CN5001	50P CONNECTER PBF	AKM1353
RESISTORS			
	R	5001,5002	ACN1248
	R	5075,5076	RS1/16S0R0J
	R	5084	RS1/16SS9101F
	R	5085	RS1/16SS3301F
	R	5092	RS1/10S0R0J
	R	5104	RS1/16SS1002F
	R	5105	RS1/16SS1501F
	R	5106	RS1/16SS8201F
	R	5108	RS1/16SS6801F
	Other Resistors		RS1/16SS###J
CAPACITORS			
	C	5001	CCSRCH221J50
	C	5002-5011,5047,5048	CCSSCH470J50
	C	5012	CKSSYB472K25
	C	5013,5016,5050	CKSSYB103K16
	C	5017	ACG7046
	C	5018,5019	DCH1165
	C	5022-5046	CKSSYF104Z16
	C	5049	CKSRYB105K10

• Block Name: ADC BLOCK

Mark	No.	Description	Part No.
SEMICONDUCTORS			
	IC	5201	TC74VHC08FTS1
	IC	5202	AD9985KSTZ-110
	IC	5203	TC7WH123FU
	Q	5204-5206	2SC4116
	D	5201-5203	1SS302
	D	5204,5205	UDZS5R6(B)
	D	5206	1SS301
MISCELLANEOUS			
⚠F		5201,5203	CCG1162
	JA	5201	AKX1059
RESISTORS			
	R	5201-5203	ACN1251
	R	5210,5255	RS1/16S0R0J
	R	5211-5213	RS1/16S75R0F
	R	5234-5236	RS1/16S102J
	R	5256	RS1/16SS2701F
	Other Resistors		RS1/16SS###J
CAPACITORS			
	C	5201,5202	CCSRCH220J50
	C	5203-5205,5224	CKSRYB105K10
	C	5206	CKSSYB823K10
	C	5207	CKSSYB822K16
	C	5208,5216,5217,5219	CKSSYF104Z16
	C	5211-5213,5220	ACG7046
	C	5218,5222,5225	CKSSYB473K16
	C	5221,5223,5226-5230	CKSSYF104Z16
	C	5232,5233,5241,5242	CKSSYF104Z16
	C	5240	CKSSYB104K10

• Block Name: VDEC BLOCK

Mark	No.	Description	Part No.
SEMICONDUCTORS			
	IC	5401	HY57V161610ETP-8
	IC	5402	UPD64015AGM-UEU
	IC	5403	TVP5150AM1PBS
MISCELLANEOUS			
⚠F		5401,5403,5405-5407	CCG1162
⚠F		5409,5411	CCG1162
	X	5401	ASS1189
	X	5402	ASS1191
RESISTORS			
	R	5401-5404	ACN1246
	R	5405,5406	BCN1067
	R	5407-5409	RS1/16S0R0J
	R	5426	RS1/16SS6200D
	R	5439	RS1/16S334J
	R	5440	RS1/16SS2201D
	R	5443	RS1/16SS1001D
	R	5445-5448	RAB4CQ220J
	Other Resistors		RS1/16SS###J
CAPACITORS			
	C	5401-5403	CKSRYB105K10
	C	5404,5405	CCSSCH100D50
	C	5406,5407	CKSSYB103K16
	C	5408,5409	CCSSCH8R0D50
	C	5414-5420,5422-5430	CKSSYF104Z16
	C	5432-5456,5461,5463	CKSSYF104Z16
	C	5457,5458,5494	ACG7046
	C	5459,5460,5462	CKSSYB104K10
	C	5464,5469,5472,5474	CKSSYF104Z16
	C	5465-5468,5470,5471	CKSSYB104K10
	C	5473,5475,5477-5479	CKSSYB104K10
	C	5476,5480,5482,5483	CKSSYF104Z16
	C	5481,5484-5486	CKSSYB104K10
	C	5492,5493	CKSSYF104Z16
	C	5495,5496	CEHVKW101M6R3

• Block Name: RGB SW BLOCK

Mark	No.	Description	Part No.
SEMICONDUCTORS			
	IC	5601	R2S11001FT
RESISTORS			
	All Resistors		RS1/16SS###J
CAPACITORS			
	C	5601-5603	CKSRYB105K10
	C	5604,5605	CCSRCH680J50
	C	5606-5610,5612-5614	CKSSYB103K16
	C	5616	CEHVKW101M6R3
	C	5618-5623	CKSSYB103K16
	C	5633,5634,5647,5655	CKSSYF104Z16
	C	5646,5654	ACG7046

• Block Name: DSEL BLOCK

Mark	No.	Description	Part No.
SEMICONDUCTORS			
	IC	5801	TC74VCX541FT
	IC	5802	PD6523A

Mark	No.	Description	Part No.
MISCELLANEOUS			
⚠L	5801,5802		BTX1042
⚠F	5803,5804		ATF1211
	X 5801		ASS1194
RESISTORS			
	R 5801-5803		ACN1251
	R 5804-5806		BCN1067
	R 5830		RAB4CQ101J
	R 5831		RAB4CQ470J
	Other Resistors		RS1/16SS###J
CAPACITORS			
	C 5803,5804,5806-5816		CKSSYF104Z16
	C 5818-5823		CKSSYF104Z16
	C 5831		ACG7046
	C 5832,5833		CKSSYB103K16
	C 5834,5835		CKSRYB105K10
• Block Name: IP BLOCK			
SEMICONDUCTORS			
	IC 6001		PE5504B
	IC 6002,6003		HY57V643220DTP-7
MISCELLANEOUS			
⚠L	6001-6004		BTX1042
RESISTORS			
	R 6001,6002,6004,6010		BCN1070
	R 6003,6005-6007,6009		BCN1067
	R 6008		BCN1071
	R 6011-6017,6026		BCN1067
	R 6018-6025		BCN1077
	R 6027		ACN1246
	R 6046,6048		RAB4CQ0R0J
	R 6047,6049		RAB4CQ470J
	Other Resistors		RS1/16SS###J
CAPACITORS			
	C 6002,6007-6024		CKSSYF104Z16
	C 6040-6063		CKSSYF104Z16
	C 6064		ACG7046
• Block Name: M BLOCK			
SEMICONDUCTORS			
	IC 6201		TC74VHC08FTS1
	IC 6202		PEG121B
MISCELLANEOUS			
⚠L	6202,6204,6206		BTX1042
⚠F	6201,6205		CCG1162
RESISTORS			
	R 6201-6204		BCN1070
	R 6205		BCN1071
	R 6206-6214,6216		BCN1067
	R 6219-6222		ACN1246
	R 6287,6289,6291		RAB4CQ103J
	R 6288,6290		RAB4CQ101J
	R 6292		RAB4CQ220J
	Other Resistors		RS1/16SS###J

Mark	No.	Description	Part No.
CAPACITORS			
	C 6206		ACG7046
	C 6210-6241		CKSSYF104Z16
• Block Name: S BLOCK			
SEMICONDUCTORS			
	IC 6401		TC74VHC08FTS1
	IC 6402		PEG121B
MISCELLANEOUS			
⚠L	6401,6402,6404		BTX1042
⚠F	6403		CCG1162
RESISTORS			
	R 6401-6404		BCN1070
	R 6405		BCN1071
	R 6406-6410		BCN1067
	R 6411-6414		ACN1246
	R 6456-6458		RAB4CQ103J
	R 6459		RAB4CQ220J
	Other Resistors		RS1/16SS###J
CAPACITORS			
	C 6404		ACG7046
	C 6406-6436		CKSSYF104Z16
• Block Name: FPGA BLOCK			
SEMICONDUCTORS			
	IC 6601		EP2C20F484C8N
MISCELLANEOUS			
⚠L	6602-6604		BTX1042
RESISTORS			
	R 6601-6606,6610,6611		BCN1067
	R 6607-6609		ACN1251
	R 6660,6661		RAB4CQ470J
	R 6662		RAB4CQ680J
	Other Resistors		RS1/16SS###J
CAPACITORS			
	C 6601-6645,6652-6654		CKSSYF104Z16
	C 6647-6650		CKSSYB102K50
	C 6651		ACG7046
• Block Name: RX BLOCK			
SEMICONDUCTORS			
	IC 6801		SII9023CTU
	IC 6802,6803		BR24L02FJ-W
	Q 6801-6803		DTC124EUA
	Q 6804-6806		DTA124EUA
	Q 6808,6809		RN1902
	Q 6810,6811		HN1K02FU
	D 6801,6802		DAN202U
	D 6803		1SS301
	D 6809,6810		UDZS6R8(B)
MISCELLANEOUS			
⚠F	6801		CCG1162
	JA6801,6802	HDMI CONNECTOR	AKP1278
	X 6801		ASS1192
	CN6801	CONNECTOR 11P	AKP1299

Mark No.	Description	Part No.
RESISTORS		
R 6801-6803		BCN1067
R 6846,6848		RS1/16S0R0J
R 6852		RAB4CQ100J
R 6853,6854		RAB4CQ470J
Other Resistors		RS1/16SS###J
CAPACITORS		
C 6801,6802		CCSSCH120J50
C 6803,6804		DCH1201
C 6806		ACG7046
C 6807,6808,6810,6812		CKSSYF104Z16
C 6809,6811,6813,6815		CCSSCH101J50
C 6814,6816,6818		CKSSYF104Z16
C 6817,6819,6827,6831		CCSSCH101J50
C 6820-6826,6828-6830		CKSSYF104Z16
C 6832-6834,6836,6838		CKSSYF104Z16
C 6835,6837,6839,6841		CCSSCH101J50
C 6840,6842,6844,6846		CKSSYF104Z16
C 6843,6845,6847,6849		CCSSCH101J50
C 6848,6850,6852,6854		CKSSYF104Z16
C 6851,6853,6855,6860		CCSSCH101J50
C 6856-6859,6861,6863		CKSSYF104Z16
C 6862,6864,6866,6868		CCSSCH101J50
C 6865,6867,6870,6872		CKSSYF104Z16
C 6869,6871,6873,6875		CCSSCH101J50
C 6874,6876,6878,6880		CKSSYF104Z16
C 6877,6879,6887-6889		CCSSCH101J50
•Block Name: RX BLOCK		
SEMICONDUCTORS		
IC 7001		SII1169CTU-P
IC 7002		SN74AHC2G66HDCT
IC 7003,7004		BR24L02FJ-W
Q 7001-7005		DTC124EUA
Q 7007		DTA124EUA
D 7001		DAN202U
D 7002,7003		1SS302
D 7004		UDZS6R8(B)
MISCELLANEOUS		
⚠L 7001		QTL1013
CN7001 DVI SOCKET (24P)		AKP1250
RESISTORS		
R 7001-7003		BCN1067
R 7024		RS1/16S3900F
R 7038		RAB4CQ472J
Other Resistors		RS1/16SS###J
CAPACITORS		
C 7001,7003,7004,7008		CCSRCH331J50
C 7002,7005-7007		CKSRYB105K10
C 7009		CCSRCH331J50
C 7010-7017		CCSSCH820J50
C 7018		DCH1201
C 7019-7022		ACG7046
C 7023-7040		CKSSYF104Z16

Mark No.	Description	Part No.
Unit Name: FHD POWER AMP ASSY		
SEMICONDUCTORS		
IC 8001		LA4625
IC 8002		NJM7812FA
IC 8003		NJM7809FA
IC 8006		UPC4570G2-A
IC 8007		NJW1183GK1
Q 8001,8002,8005,8006		2SA1586
Q 8003,8004		2SC4116
Q 8007,8008		DTC124EUA
MISCELLANEOUS		
8001 AUDIO HEATSINK (F)		ANH1650
8002-8005 SCREW		VBB30P100FNI
KN8001,8002 WRAPPING TERMINAL		VNF1084
CN8001 CONNECTOR		B3P-VH
CN8003 PLUG(15P)		KM200NA15
CN8004 CONNECTOR		B6B-EH
RESISTORS		
R 8001-8004		RS1/16S6801F
R 8005-8008		RS1/16S3301F
R 8053-8056,8058		RD1/2MMF2R2J
Other Resistors		RS1/16S###J
CAPACITORS		
C 8001,8027,8039,8045		CEHAT101M16
C 8002,8040,8062,8064		CKSRYB103K50
C 8003,8004		CEHAT470M16
C 8005,8006,8009,8010		CEHAT100M50
C 8011-8016,8021,8023		CFTLA104J50
C 8017,8020,8024-8026		CEHAT1R0M50
C 8018		CKSRYB822K50
C 8019		CFTLA334J50
C 8022,8035		CKSRYB222K50
C 8028,8058		CFTLA103J50
C 8029,8033,8036		CFTLA104J50
C 8031		CFTLA223J50
C 8032,8034,8037,8038		CEHAT1R0M50
C 8041,8042		CEHAT100M50
C 8043,8044		CEHAT2R2M50
C 8046		CEHAT220M50
C 8047		CEHATR47M50
C 8048,8067		CEHAT101M16
C 8053-8056		CFTLA104J50
C 8057		CEHAT472M25
C 8059,8060		CEHAT4R7M50
C 8061		CEHAT471M25
C 8063		CEHAT331M16
C 8068		CKSRYB103K50
Unit Name: FHD PRE AUDIO ASSY		
SEMICONDUCTORS		
IC 8201		R2S11002AFT
IC 8202-8204		UPC4570G2
IC 8205,8209		PCM1754DBQ
IC 8206,8210		NJM12904V
IC 8207		PCM1803DB

Mark	No.	Description	Part No.
	IC	8208	NJU26901E2
	Q	8201,8202	2SA1586
	Q	8203,8204,8211,8212	2SC4116
	Q	8213	DTA124EUA
	Q	8215,8216	HN1B04FU
	D	8201	UDZS2R4(B)
	MISCELLANEOUS		
	L	8211	BTH1111
	JA	8201-8206 JACK	PKB1029
	X	8201 CRYSTAL	ASS1204
	CN8201	CONNECTOR 11P	AKM1359
	CN8202	PLUG(15P)	KM200NA15
	RESISTORS		
	R	8241-8244,8334	RS1/16S222J
	R	8247,8248,8343-8346	RS1/16S102J
	R	8249-8252	RS1/16S473J
	R	8255,8256	RS1/16S272J
	R	8257,8258,8320,8321	RS1/16S223J
	R	8259-8262	RS1/16S3301F
	R	8263-8266	RS1/16S101J
	R	8267-8275,8325,8326	RS1/16S0R0J
	R	8280	RAB4CQ103J
	R	8281,8322	RAB4CQ470J
	R	8301,8302,8335,8336	RS1/16S182J
	R	8333	RS1/16S472J
	R	8349-8355	RS1/16S0R0J
	R	8356	RS1/16S470J
	Other Resistors		RS1/16SS###J
	CAPACITORS		
	C	8201-8212,8221-8224	CKSRYB105K10
	C	8219,8234,8250,8253	CKSSYF104Z16
	C	8220,8277,8278,8307	DCH1165
	C	8235,8239,8285,8286	CKSRYB105K10
	C	8237,8287	CEHAT101M10
	C	8238,8272,8296,8298	ACG7046
	C	8254,8261,8263,8264	CKSSYF104Z16
	C	8255-8258	CEHAT100M50
	C	8262	CEHAT220M50
	C	8265-8268	CKSRYB102K50
	C	8269,8271,8283,8284	CKSSYF104Z16
	C	8270,8316	CEHAT101M16
	C	8274	ACG1122
	C	8279,8280	CCSRCH681J50
	C	8281,8282	CCSRCH181J50
	C	8289-8292,8317,8318	CKSRYB105K10
	C	8293,8294	CKSSYB681K50
	C	8295,8297,8299-8301	CKSSYF104Z16
	C	8302,8304,8305	ACG7046
	C	8303	CKSSYF104Z16
⚠	C	8306	CCSSCH221J50
	C	8308	DCH1165
	C	8309,8310	CKSSYB152K50
	C	8311,8312	CCSRCH331J50
	C	8313-8315	CKSSYB104K10

Unit Name: FHD SP LR1 ASSY

Mark	No.	Description	Part No.
	MISCELLANEOUS		
⚠	L	8402	ATF1206
	CN8401	3P TOP POST	B3B-EH
	CN8402	SPEAKER TERMINAL 2-P	AKE1041
	RESISTORS		
	R	8404,8408	RD1/2MMF100J
	Other Resistors		RS1/16S###J
	CAPACITORS		
	C	8403,8404	CCSRCH101J50
	C	8405	CKSRYB332K50
	C	8406,8409,8410	CCSRCH221J50
	C	8407	CKSRYF473Z50
⚠	C	8411,8412	CCSRCH221J50

Unit Name: FHD SP LR2 ASSY

Mark	No.	Description	Part No.
	MISCELLANEOUS		
⚠	L	8502	ATF1206
	CN8501	3P TOP POST	B3B-EH
	CN8502	SPEAKER TERMINAL 2-P	AKE1041
	RESISTORS		
	R	8504,8508	RD1/2MMF100J
	Other Resistors		RS1/16S###J
	CAPACITORS		
	C	8503,8504	CCSRCH101J50
	C	8505	CKSRYB332K50
	C	8506,8509,8510	CCSRCH221J50
	C	8507	CKSRYF473Z50
⚠	C	8511,8512	CCSRCH221J50

Unit Name: FHD LED ASSY

Mark	No.	Description	Part No.
	SEMICONDUCTORS		
	D	8601	TLRV1022
	D	8602	SML512BC4T
	MISCELLANEOUS		
	CN8601	L-PLUG(3P)	KM200NA3L
	RESISTORS		
	All Resistors		RS1/16S###J

Unit Name: FHD FAN CONNECT ASSY

Mark	No.	Description	Part No.
	SEMICONDUCTORS		
	Q	8651,8652	DTC124EUA
	D	8651,8652	DAN202U
	RESISTORS		
	All Resistors		RS1/16SS###J

Mark	No.	Description	Part No.

Unit Name: FHD IR ASSY

SEMICONDUCTORS

	Q	8701	2SA1586
	D	8701	DA204U

MISCELLANEOUS

	CN8701	CONNECTOR	AKM1290
	U	8701 REMOTE RECEIVER UNIT	RPM7240-H5

RESISTORS

	All Resistors		RS1/16SS###J

CAPACITORS

	C	8701	CEVW470M6R3
	C	8702	CKSRYB103K50
	C	8703	CKSSYB102K50
	C	8704	CKSSYF104Z16

Unit Name: FHD KEY ASSY

MISCELLANEOUS

	S	8751-8755,8757-8761	VSG1024
	CN8751	8P CONNECTER	AKM1207

Unit Name: FHD KEY CONTROL ASSY

SEMICONDUCTORS

	IC	8801	PD5719A
	Q	8801	2SC4116
	D	8801-8803,8805-8808	1SS302
	D	8804	1SS355

MISCELLANEOUS

⚠	F	8801-8808	CTF1410
	X	8801 CERALOCK	ASS1162
	CN8802	8P CONNECTER	AKM1207

RESISTORS

	R	8808	RAB4C182J
	Other Resistors		RS1/16S###J

CAPACITORS

	C	8801,8802	CKSRYB472K50
⚠	C	8803	CKSRYB472K50
	C	8804	CKSSYF104Z16
	C	8805	CEVW470M6R3
⚠	C	8806-8808	CCSRCH101J50

Unit Name: FHD RS232C+SR ASSY

MISCELLANEOUS

	8851	SCREW TERMINAL	VNE1949

SEMICONDUCTORS

	IC	8851	TC74VHC00FTS1
	IC	8852	MM1522XU
	IC	8853	MAX3232CPW
	IC	8854	TC74VHC125FTS1
	Q	8851,8852	2SA1586
	Q	8853,8854,8856	DTC124EUA
	D	8851-8854	1SS355

MISCELLANEOUS

	JA8852	MINI JACK(4P)	AKN1073
	JA8853	JACK	RKN1004
	CN8852	PLUG(6P)	KM200NA6
	CN8853	9P D-SUB SOCKET	AKP1213

RESISTORS

	R	8881-8889	RS1/16S0R0J
	Other Resistors		RS1/16SS###J

CAPACITORS

	C	8851-8855,8857,8858	CKSSYF104Z16
	C	8856,8859	CEHVKW100M16
	C	8860	CKSSYF104Z16
	C	8861	CKSRYB103K50

Unit Name: FHD DIGITAL ASSY

MISCELLANEOUS

• Block Name: LVDS RX BLOCK

SEMICONDUCTORS

	IC	3001,3002	THC63LVD104S
	IC	3003	MM1562FF
	Q	3001	DTC143EUA
	D	3001	1SS355

MISCELLANEOUS

	L	3001-3004	QTL1013
	F	3003-3014	ATF1209
	CN3001,3002	31P CONNECTER	AKM1239

RESISTORS

	R	3001-3018	RAB4C220J
	R	3019-3021,3023-3025	RS1/16SS1000F
	R	3027-3029,3031-3033	RS1/16SS1000F
	R	3048,3050	RS1/16S0R0J
	Other Resistors		RS1/16SS###J

CAPACITORS

	C	3001-3006,3009-3011	CKSSYB104K10
	C	3007,3008,3012,3013	CKSRYB105K6R3
	C	3014-3016	CKSSYB104K10
	C	3017	CCSRCH471J50

• Block Name: ASIC VICTRIA BLOCK

SEMICONDUCTORS

	IC	3101	PEE004A

MISCELLANEOUS

	L	3101-3105	QTL1013
	F	3101	CCG1162

RESISTORS

	R	3113,3116,3118	RAB4C103J
	R	3129-3148	RAB4C220J
	Other Resistors		RS1/16SS###J

CAPACITORS

	C	3101-3116,3127-3142	CKSSYB104K10
	C	3143-3146	CKSSYB102K50
	C	3147-3150	CKSSYB104K10

Mark	No.	Description	Part No.
• Block Name: SQ ASIC-L BLOCK			
SEMICONDUCTORS			
	IC	3201	PEG122C
MISCELLANEOUS			
	L	3201-3203	QTL1013
	F	3201,3202	CCG1162
RESISTORS			
	R	3208,3212	RAB4C101J
	R	3214	RS1/16S5601F
		Other Resistors	RS1/16SS###J
CAPACITORS			
	C	3201-3227	CKSSYB104K10
	C	3228-3231	ACH1396
	C	3232-3247	CKSRYB105K6R3
• Block Name: SQ ASIC-R BLOCK			
SEMICONDUCTORS			
	IC	3301	PEG122C
MISCELLANEOUS			
	L	3301-3303	QTL1013
	F	3301,3302	CCG1162
RESISTORS			
	R	3301-3306,3309-3311	RAB4C220J
	R	3308,3312	RAB4C101J
	R	3314	RS1/16S5601F
		Other Resistors	RS1/16SS###J
CAPACITORS			
	C	3301-3316	CKSRYB105K6R3
	C	3317-3320	ACH1396
	C	3321-3347	CKSSYB104K10
• Block Name: ASIC FLASH BLOCK			
SEMICONDUCTORS			
	IC	3401	CY25561SXC
	IC	3402,3404	PST3628UR
	IC	3403,3415	PST3610UR
	IC	3405	SN74AHC08PW
	IC	3407,3408	TC7W126FU
	IC	3409,3410	AGC1014
	IC	3411,3412	SN74AHC541PW
	IC	3413,3414	TC74VCX541FT
	Q	3404,3405	HN1C01FU
	Q	3406,3407	RN1901
	Q	3408	DTC143EUA
MISCELLANEOUS			
	L	3401	QTL1013
	X	3401 CRYSTAL OSCILLATOR	ASS1188
	CN3401	PLUG 15-P	AKM1232
RESISTORS			
	R	3401,3461,3462	RAB4C472J
	R	3402,3403	RAB4C101J
		Other Resistors	RS1/16SS###J

Mark	No.	Description	Part No.
CAPACITORS			
	C	3401-3403,3426	CKSRYB472K50
	C	3405,3429-3431	CCSRCH471J50
	C	3406,3407	CKSSYB102K50
	C	3408-3410,3413-3425	CKSSYB104K10
	C	3428	ACH1357
• Block Name: CN BLOCK			
SEMICONDUCTORS			
	Q	3601,3602	DTC143EUA
	D	3601-3604	DAN202U
	D	3605-3608	1SS355
MISCELLANEOUS			
	F	3601-3660	ATF1209
	CN3601-3614	40P CONNECTER	AKM1348
RESISTORS			
	R	3601,3604,3606,3609	RAB4C222J
	R	3602,3605,3607	RAB4C101J
	R	3603,3608	RAB4C472J
	R	3610-3612	RAB4C101J
		Other Resistors	RS1/16SS###J
CAPACITORS			
	C	3601-3620	CKSSYB102K50
• Block Name: MODULE UCOM BLOCK			
SEMICONDUCTORS			
	IC	3701	BR24L04FJ-W
	IC	3702	TC7W126FU
	IC	3703	AGC1015
	IC	3704	SN74AHC08PW
	IC	3705	TC74VCX08FT
	IC	3706	M62334FP
	IC	3707,3708	TC74VHC123AFTS1
	IC	3709,3710	SN74AHC541PW
	Q	3701	RN2901
	Q	3702	2SJ461A
	D	3702-3706,3713,3716	DAN202U
	D	3707,3708	SML-310MT
	D	3709-3712	1SS355
	D	3714	SML-311UT
	D	3715	SML512BC4T
MISCELLANEOUS			
	X	3701	CSS1616
	CN3701	PLUG 8-P	AKM1225
	CN3702	CONNECTOR	AKM1276
	CN3703	CONNECTOR	AKM1278
RESISTORS			
	R	3701,3703	RAB4C101J
	R	3702	RAB4C103J
		Other Resistors	RS1/16SS###J
CAPACITORS			
	C	3701-3703,3726,3727	CKSRYB105K6R3
	C	3707	ACH1357
	C	3709-3711,3713-3723	CKSSYB104K10
	C	3712	CCSSCH101J50
	C	3725	CKSSYB104K10

Mark No.	Description	Part No.

• Block Name: DIGITAL DD CON BLOCK

MISCELLANEOUS

U	3801	AXY1138

RESISTORS

R	3801	RAB4C101J
R	3837,3838	RS1/16S0R0J
Other Resistors		RS1/16SS###J

CAPACITORS

C	3804	CKSSYB102K50

Unit Name: PANEL SENSOR ASSY

SEMICONDUCTORS

IC	3901	MM1522XU
IC	3902	BR24L02FJ-W
Q	3901	HN1B04FU

MISCELLANEOUS

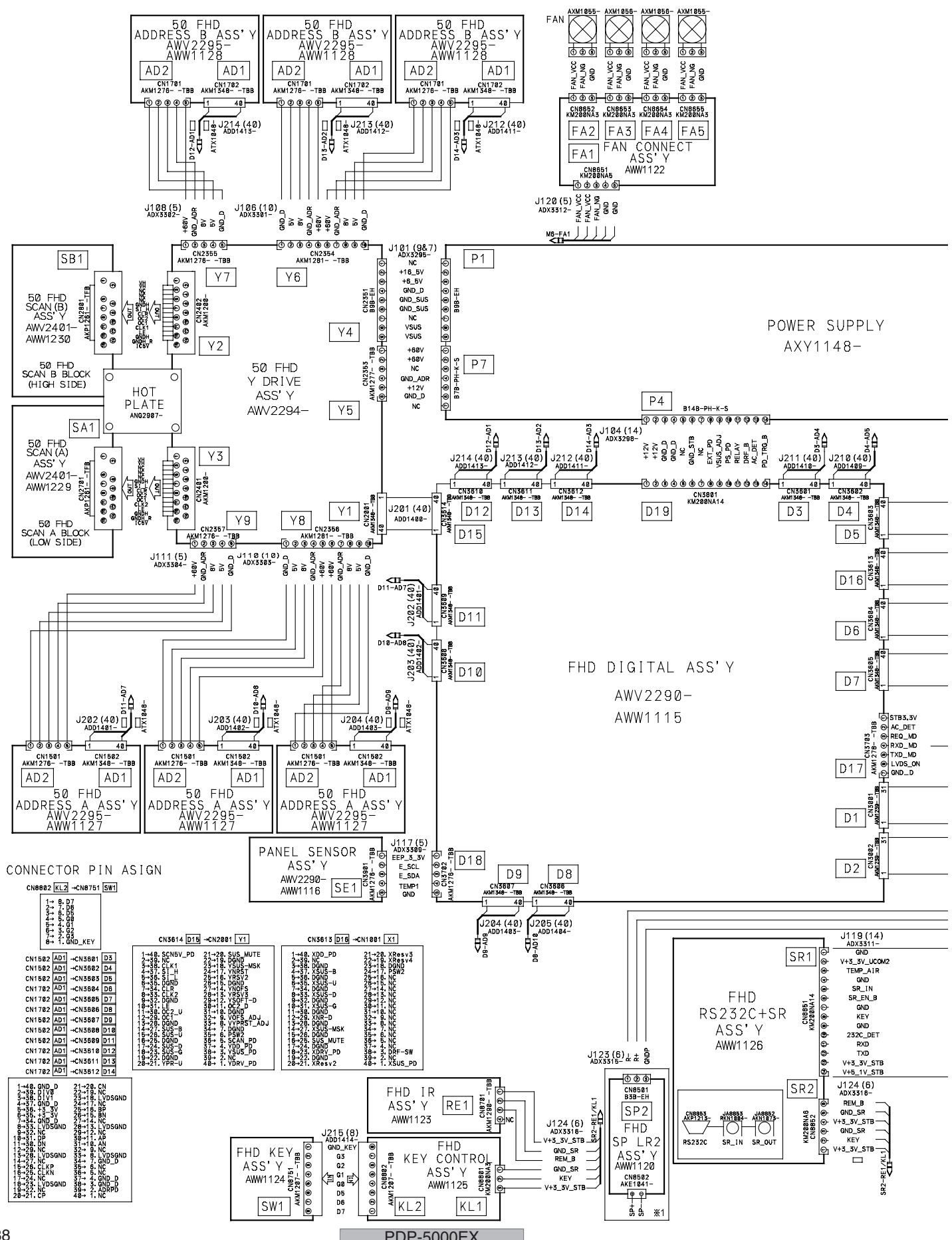
CN3901	CONNECTOR	AKM1276
All Resistors		RS1/16SS###J

CAPACITORS

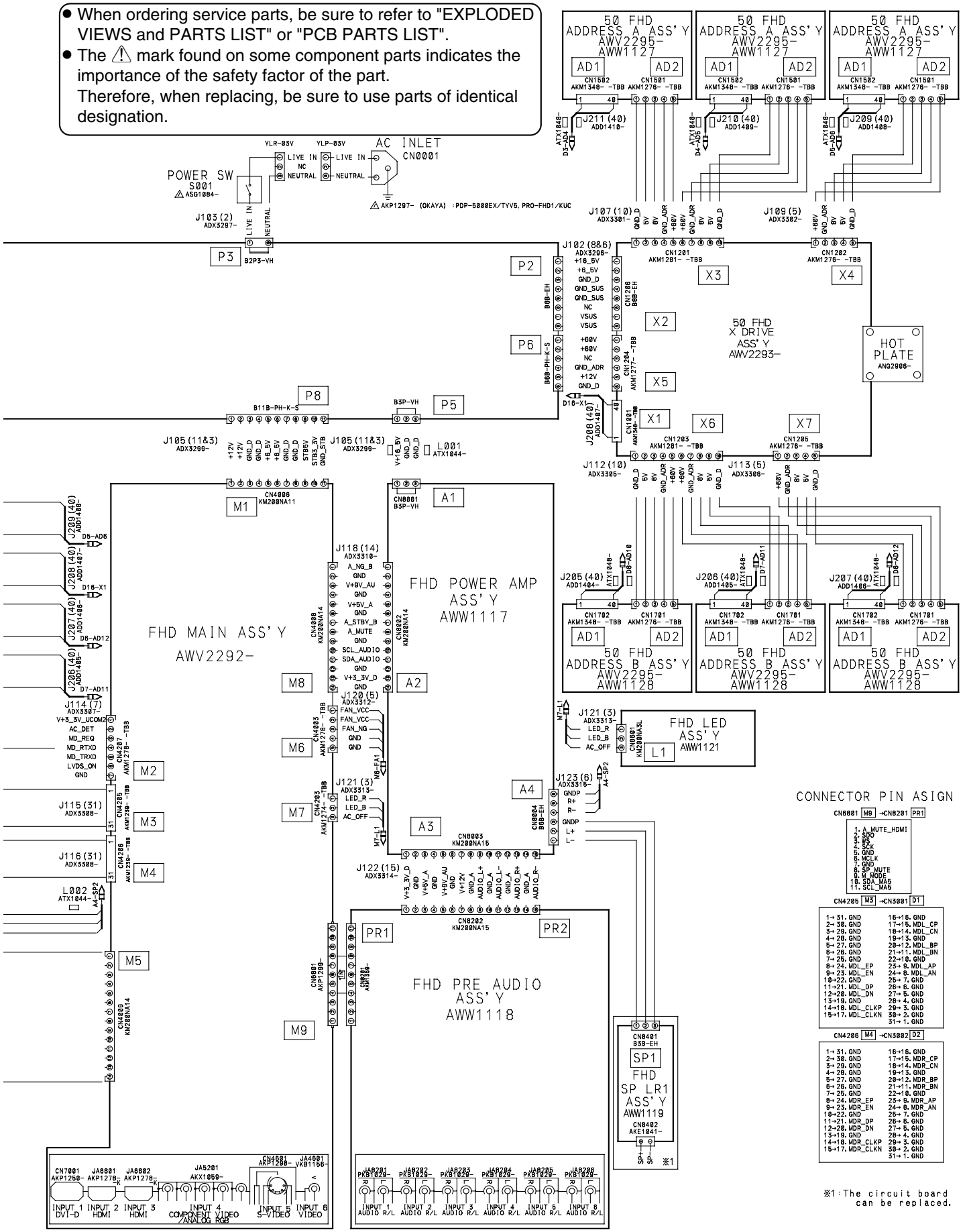
C	3901,3902	CKSSYB104K10
C	3903,3904	CKSSYB103K16
C	3906,3907	CKSRYB105K6R3

4. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

4.1 OVERALL WIRING DIAGRAM

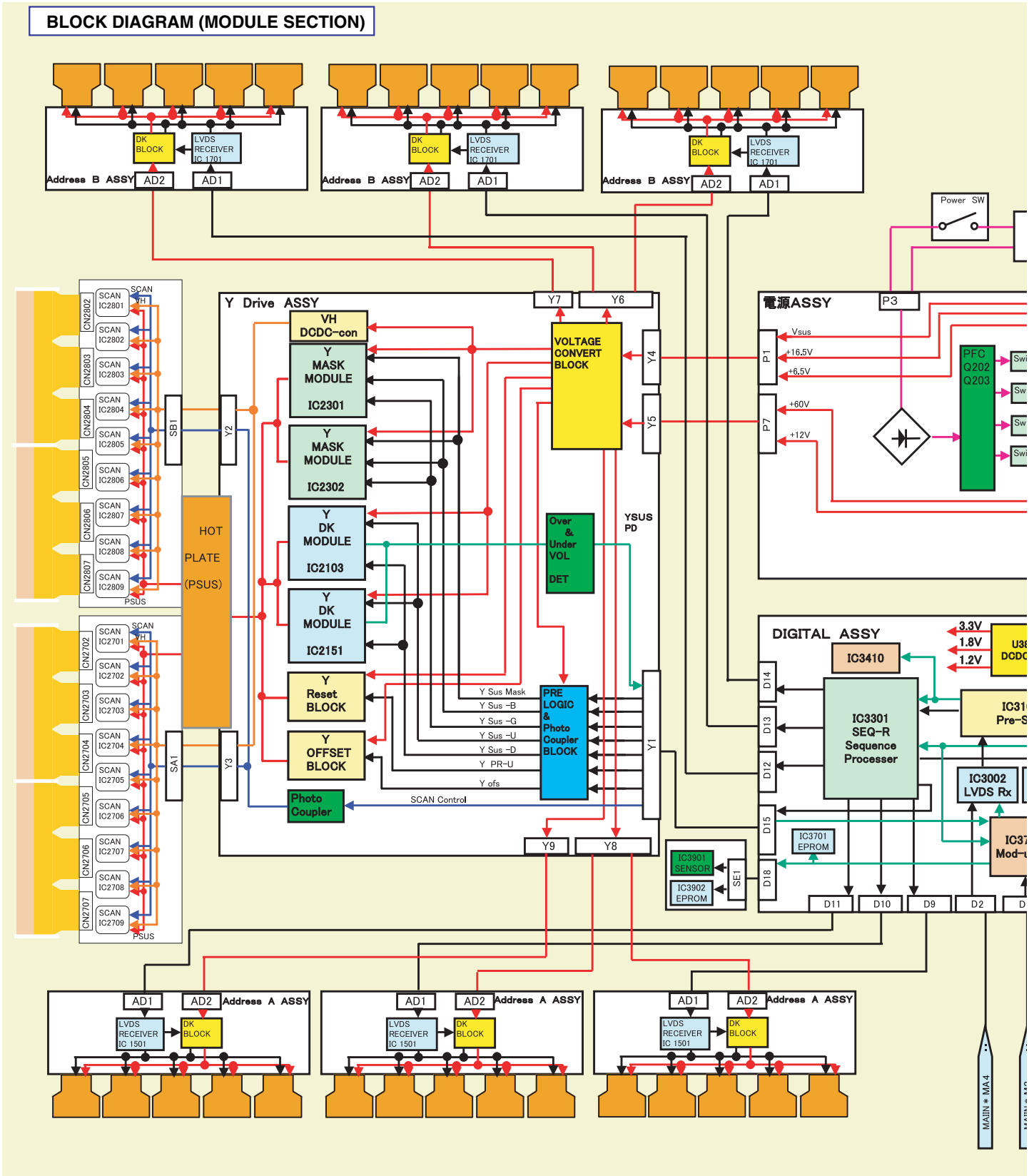

50 FHD ADDRESS B ASS'Y AWV2295- AWW1128
AD2
AD1
FAN
AXM1055-
AXM1056-
FAN CONNECT ASS'Y AWW1122
POWER SUPPLY AXY1148-
50 FHD SCAN(B) ASS'Y AWV2401- AWW1230
50 FHD SCAN B BLOCK (HIGH SIDE)
HOT PLATE ANQ2907-
50 FHD SCAN(A) ASS'Y AWV2401- AWW1229
50 FHD SCAN A BLOCK (LOW SIDE)
50 FHD Y DRIVE ASS'Y AWV2294-
FHD DIGITAL ASS'Y AWV2290- AWW1115
50 FHD ADDRESS A ASS'Y AWV2295- AWW1127
PANEL SENSOR ASS'Y AWV2290- AWW1116
FHD RS232C+SR ASS'Y AWW1126
FHD IR ASS'Y AWW1123
FHD KEY ASS'Y AWW1124
FHD KEY CONTROL ASS'Y AWW1125
FHD SP LR2 ASS'Y AWW1120
CONNECTOR PIN ASIGN

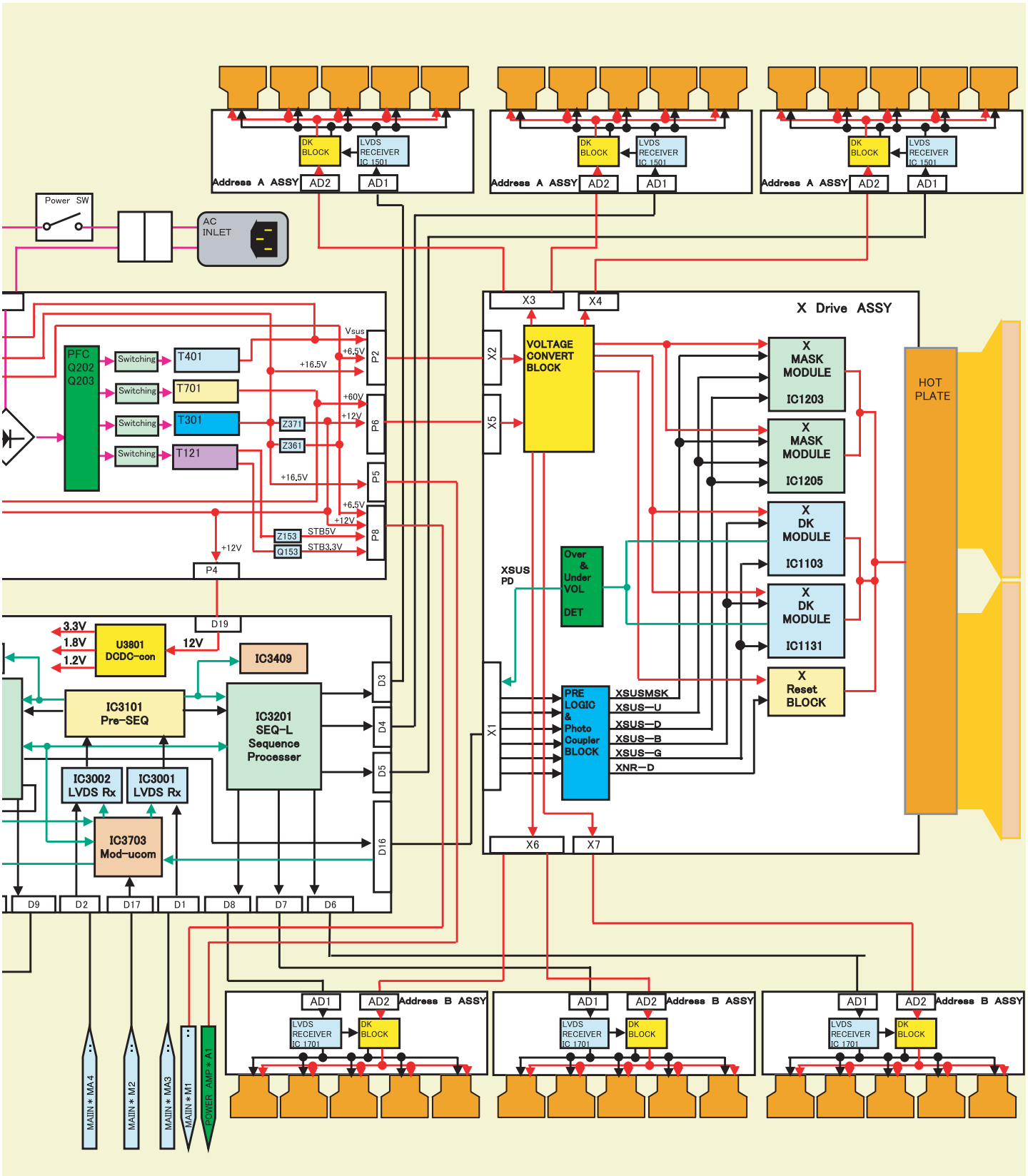
- When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part.
  Therefore, when replacing, be sure to use parts of identical designation.


50 FHD ADDRESS A ASS'Y AWV2295- AWW1127
AD1
AD2
AC INLET CN0001
POWER SW S001
FHD MAIN ASS'Y AWV2292-
FHD POWER AMP ASS'Y AWW1117
FHD PRE AUDIO ASS'Y AWW1118
50 FHD X DRIVE ASS'Y AWV2293-
HOT PLATE ANG2906-
50 FHD ADDRESS B ASS'Y AWV2295- AWW1128
FHD LED ASS'Y AWW1121
FHD SP LR1 ASS'Y AWW1119
CONNECTOR PIN ASIGN
※1:The circuit board can be replaced.

4.2 OVERALL BLOCK DIAGRAM

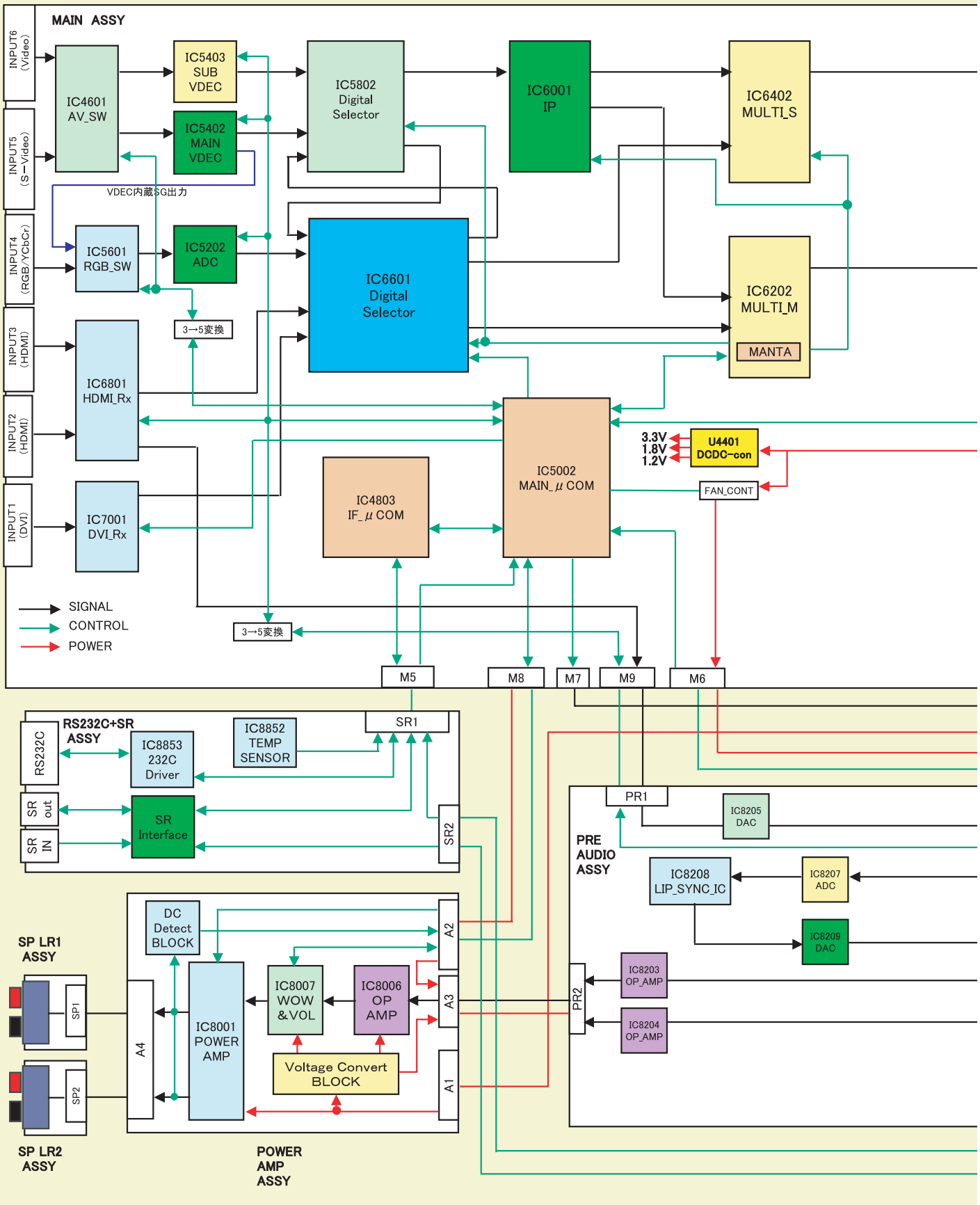
4.2.1 MODULE SECTION

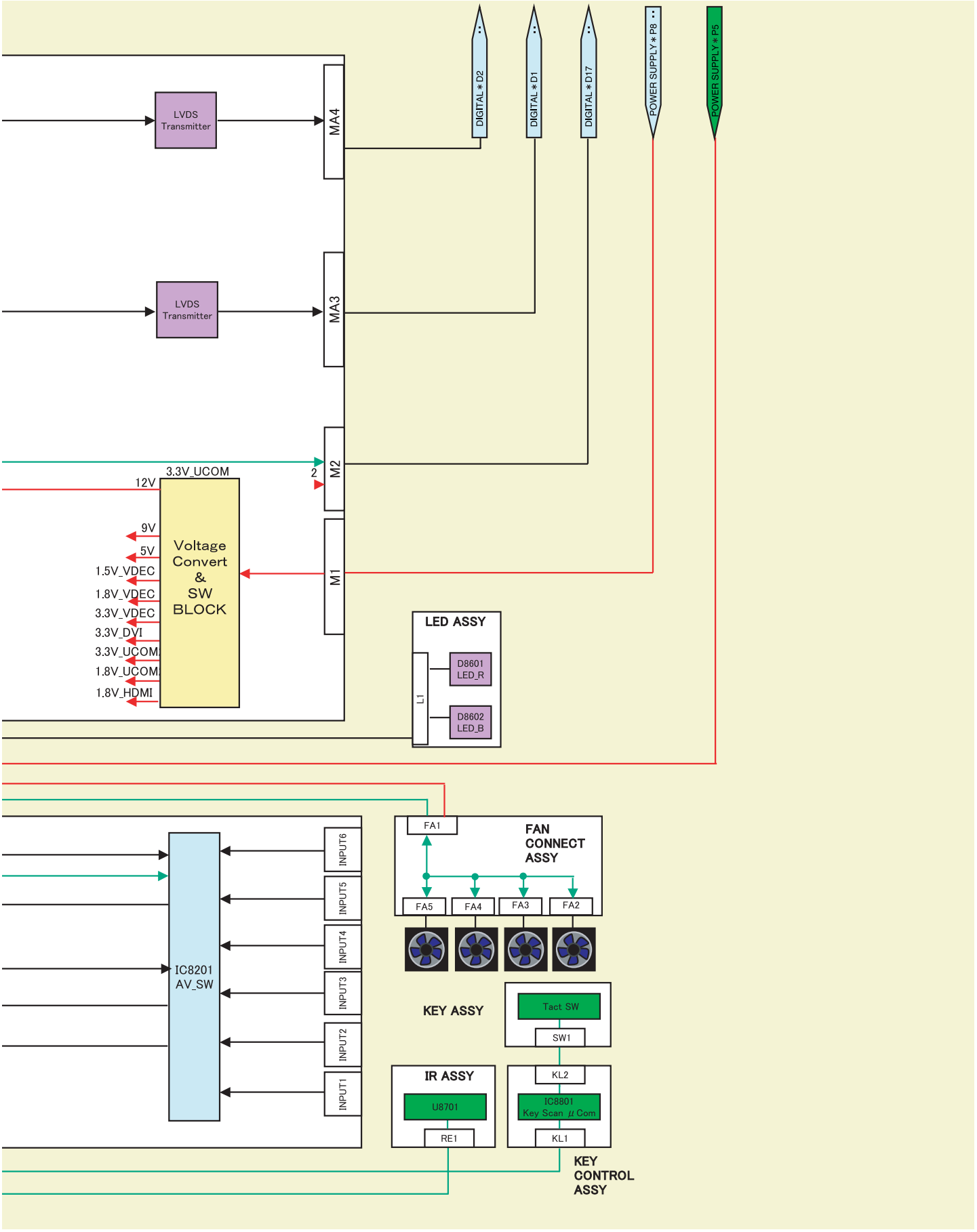



Power SW
AC INLET
Address A ASSY
DK BLOCK
LVDS RECEIVER IC 1501
AD1
AD2
PFC Q202 Q203
Switching
T401
T701
T301
T121
Z371
Z361
Z153
Z153
Q153
STB5V
STB3.3V
Vsus
+6.5V
+16.5V
+60V
+12V
P2
P4
P5
P6
P8
X Drive ASSY
X3
X4
X2
X5
X1
X6
X7
VOLTAGE CONVERT BLOCK
X MASK MODULE IC1203
X MASK MODULE IC1205
X DK MODULE IC1103
X DK MODULE IC1131
X Reset BLOCK
HOT PLATE
XSUS PD
Over & Under VOL DET
PRE LOGIC & Photo Coupler BLOCK
XSUSMSK
XSUS-U
XSUS-D
XSUS-B
XSUS-G
XNR-D
3.3V
1.8V
1.2V
U3801 DCDC-con
12V
D19
IC3409
IC3101 Pre-SEQ
IC3201 SEQ-L Sequence Processer
IC3002 LVDS Rx
IC3001 LVDS Rx
IC3703 Mod-ucom
D3
D4
D5
D16
D9
D2
D17
D1
D8
D7
D6
Address B ASSY
LVDS RECEIVER IC 1701
MAIN * MA4
MAIN * M2
MAIN * MA3
MAIN * M1
POWER AMP * A1

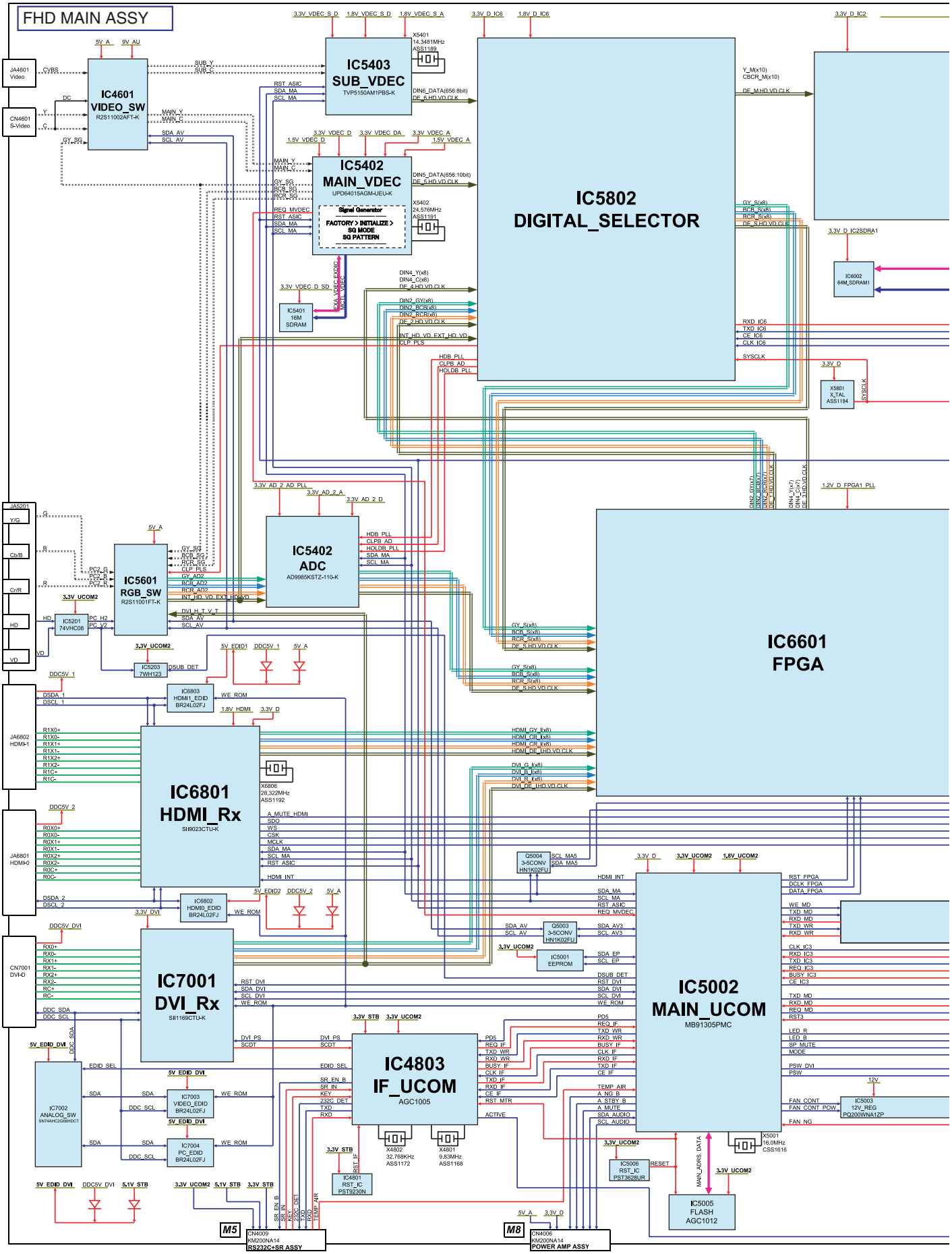
4.2.2 MULTI BASE SECTION

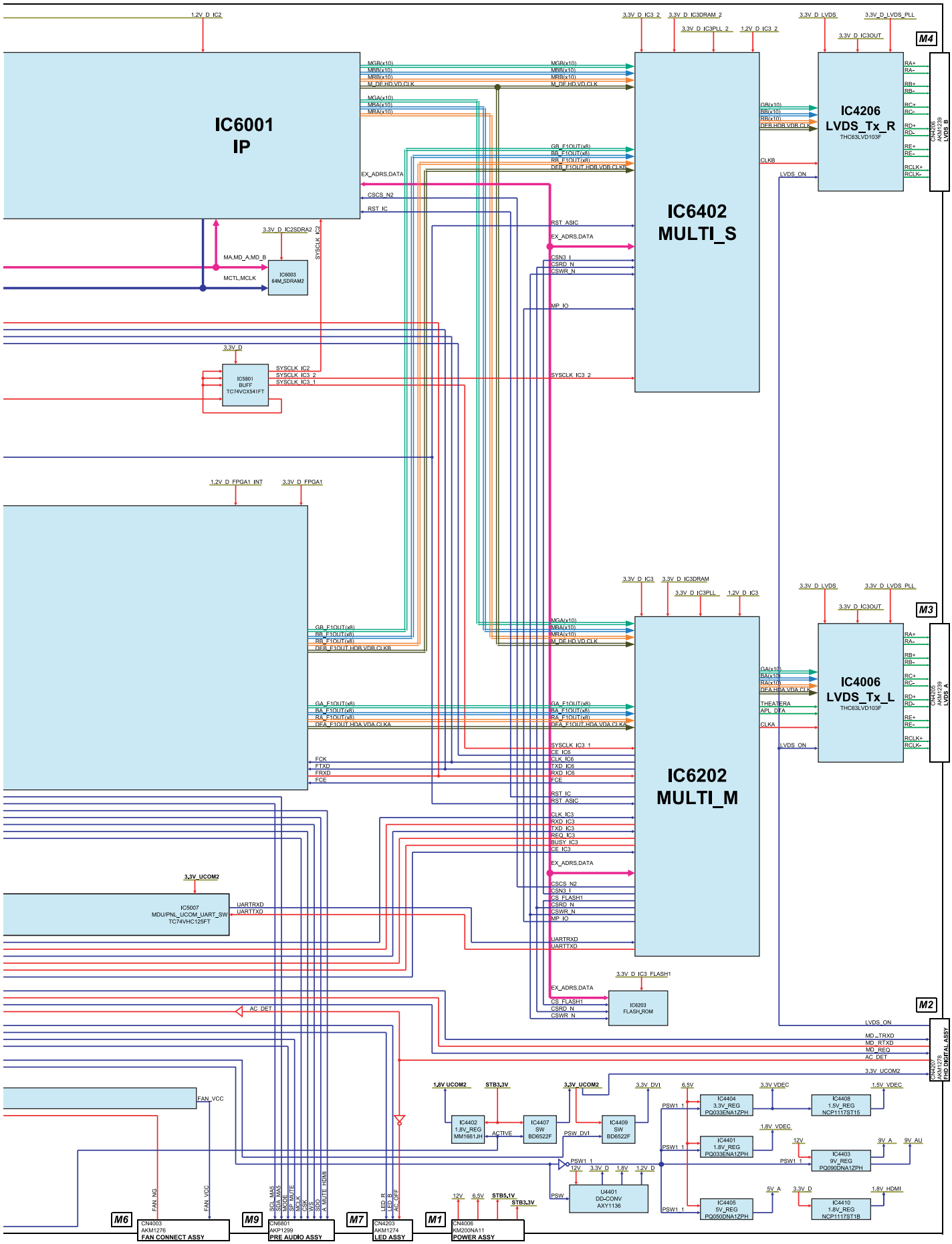
BLOCK DIAGRAM (MULTI BASE SECTION)




DIGITAL＊D2
DIGITAL＊D1
DIGITAL＊D17
POWER SUPPLY＊P8
POWER SUPPLY＊P5
LVDS Transmitter
LVDS Transmitter
MA4
MA3
M2
M1
2
3.3V_UCOM
12V
9V
5V
1.5V_VDEC
1.8V_VDEC
3.3V_VDEC
3.3V_DVI
3.3V_UCOM
1.8V_UCOM
1.8V_HDMI
Voltage Convert & SW BLOCK
LED ASSY
L1
D8601 LED_R
D8602 LED_B
IC8201 AV_SW
INPUT6
INPUT5
INPUT4
INPUT3
INPUT2
INPUT1
FA1
FAN CONNECT ASSY
FA5
FA4
FA3
FA2
KEY ASSY
Tact SW
SW1
IR ASSY
U8701
RE1
KL2
IC8801 Key Scan μ Com
KL1
KEY CONTROL ASSY

4.3 FHD MAIN ASSY

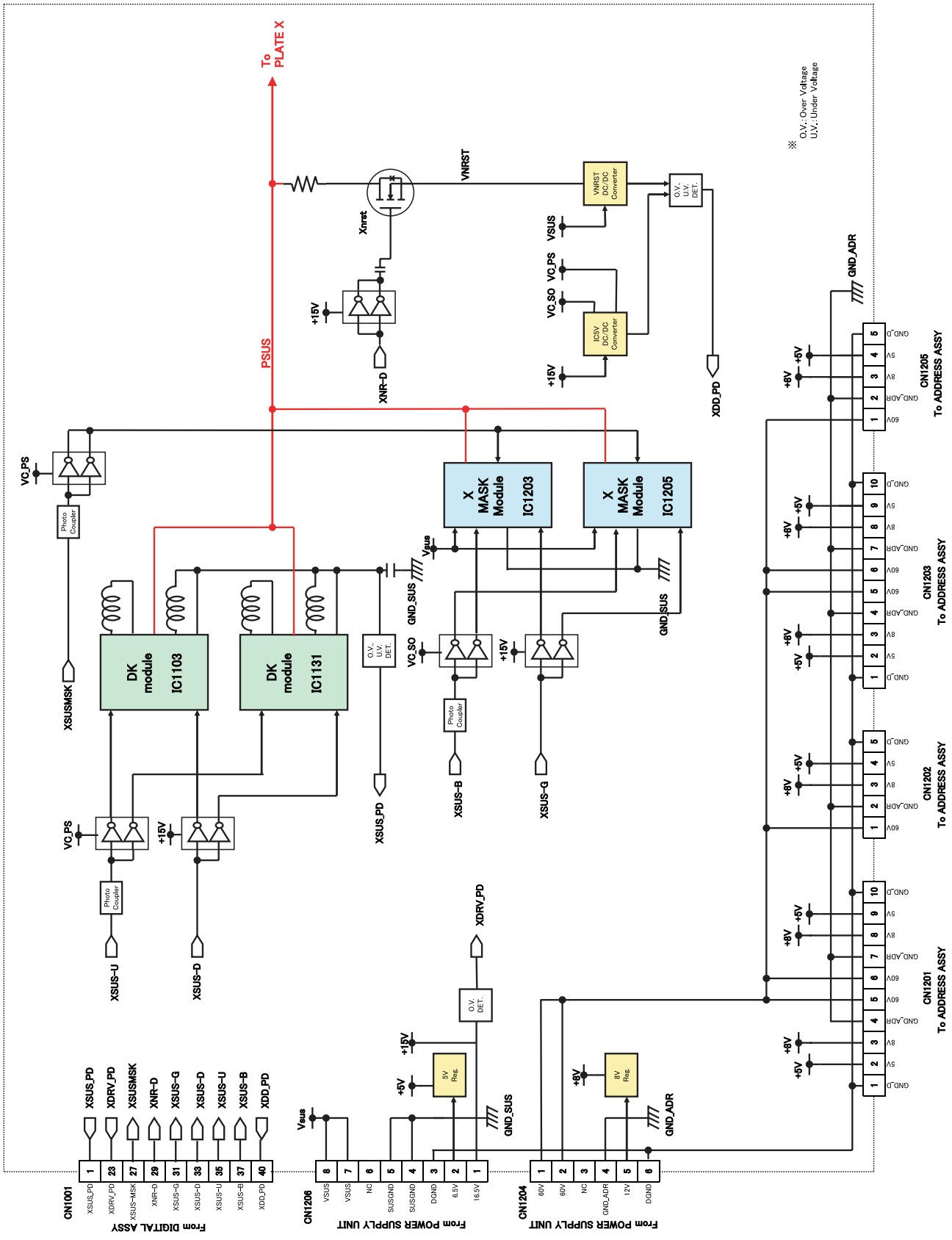



IC6001
IP
IC6402
MULTI_S
IC4206
LVDS_Tx_R
THC63LVD103F
IC6202
MULTI_M
IC4006
LVDS_Tx_L
THC63LVD103F
IC6003
64M_SDRAM2
IC5801
BUFF
TC74VCX541FT
IC5007
MDU/PNL_UCOM_UART_SW
TC74VHC125FT
IC6203
FLASH_ROM
IC4402
1.8V_REG
MM1661JH
IC4407
SW
BD6522F
IC4409
SW
BD6522F
IC4404
3.3V_REG
PQ033ENA1ZPH
IC4408
1.5V_REG
NCP1117ST15
IC4401
1.8V_REG
PQ033ENA1ZPH
IC4403
9V_REG
PQ090DNA1ZPH
IC4405
5V_REG
PQ050DNA1ZPH
IC4410
1.8V_REG
NCP1117ST1B
U4401
DD-CONV
AXY1136
M4
M3
M2
M6
M9
M7
M1
CN4003
AKM1276
FAN CONNECT ASSY
CN6801
AKP1299
PRE AUDIO ASSY
CN4203
AKM1274
LED ASSY
CN4006
KM200NA11
POWER ASSY
CN4205
AKM1279
LVDS B
CN4204
AKM1279
LVDS A
CN4207
AKM1278
PHD DIGITAL ASSY

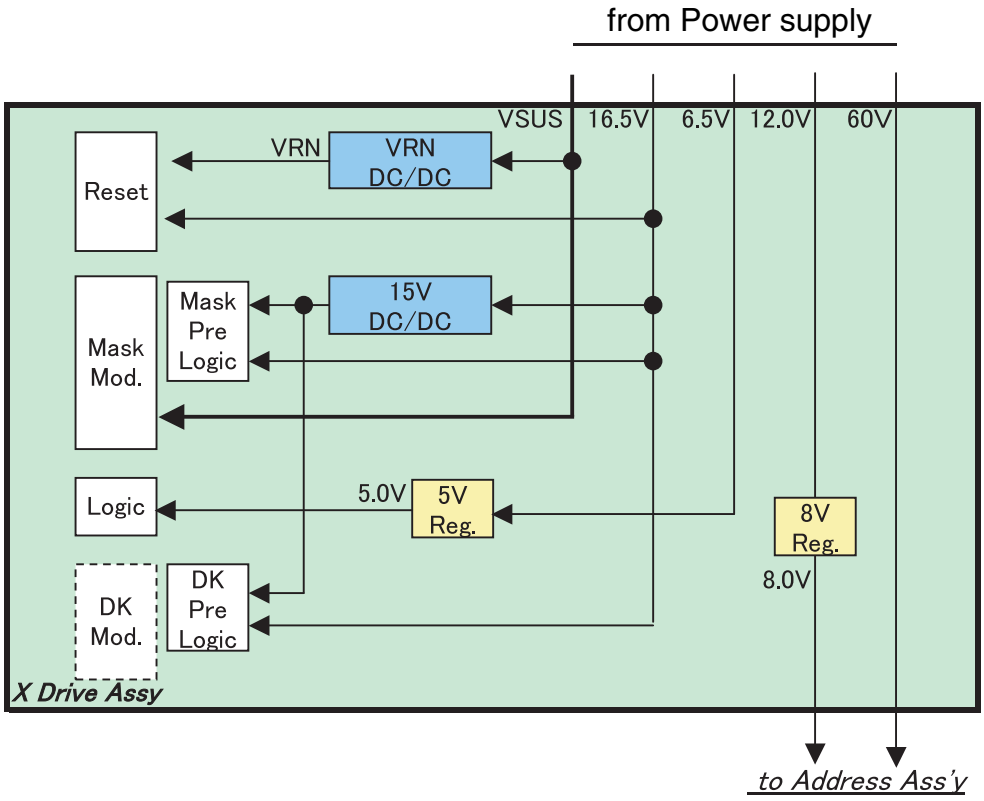
4.4 50FHD X DRIVE ASSY

A

50FHD X DRIVE ASSY

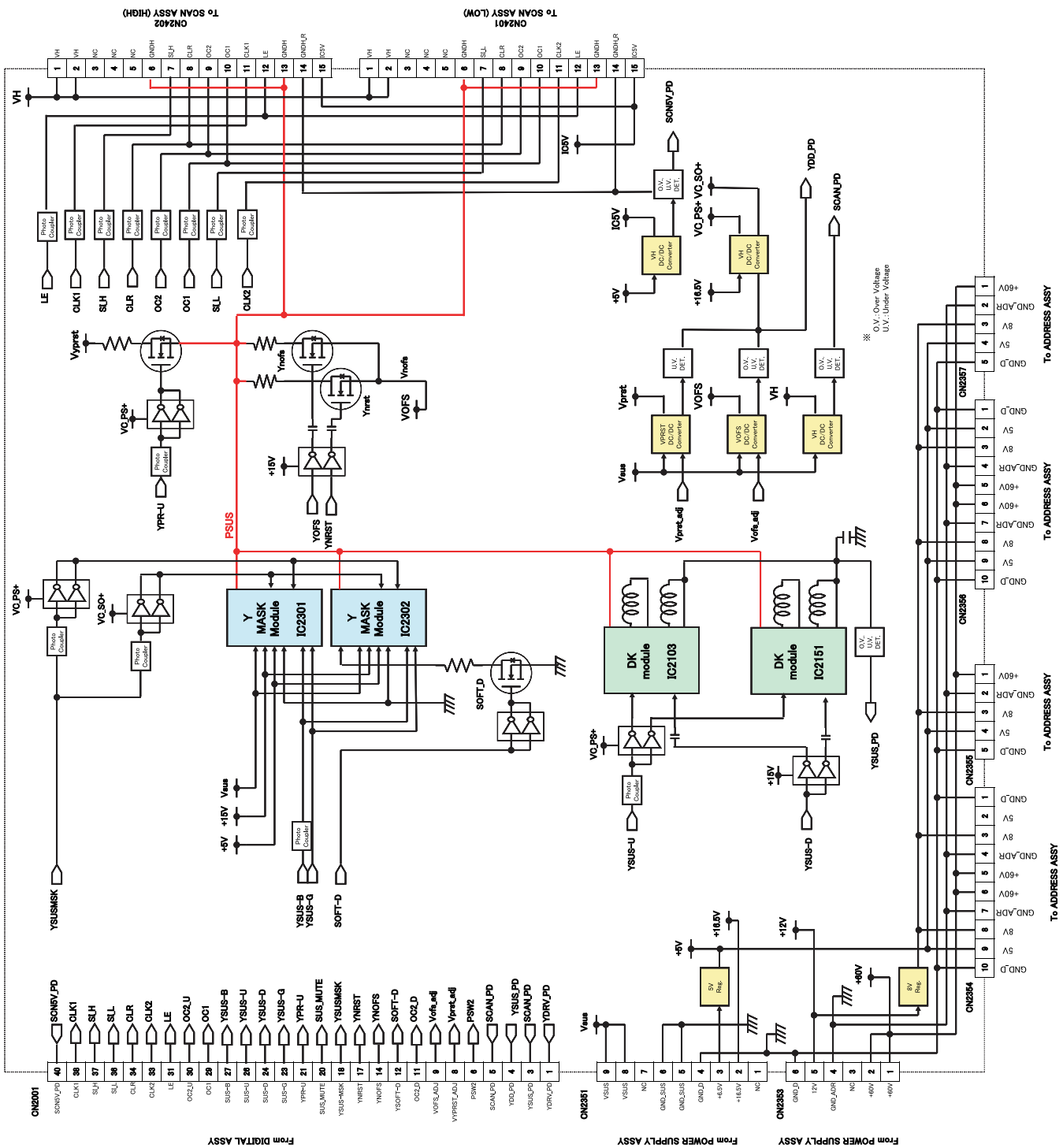


X Drive power supply map

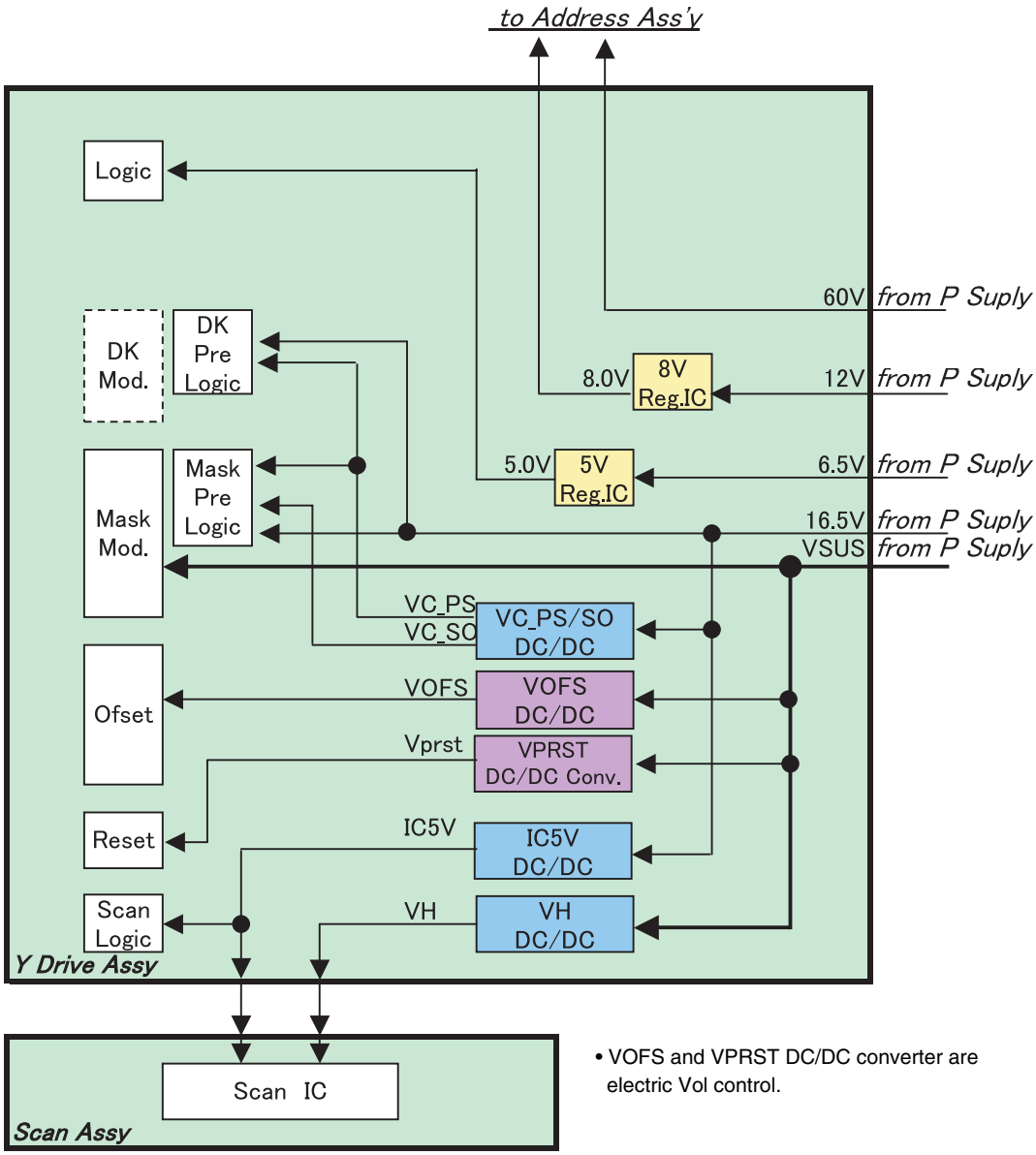


4.5 50FHD Y DRIVE ASSY

50FHD Y DRIVE ASSY

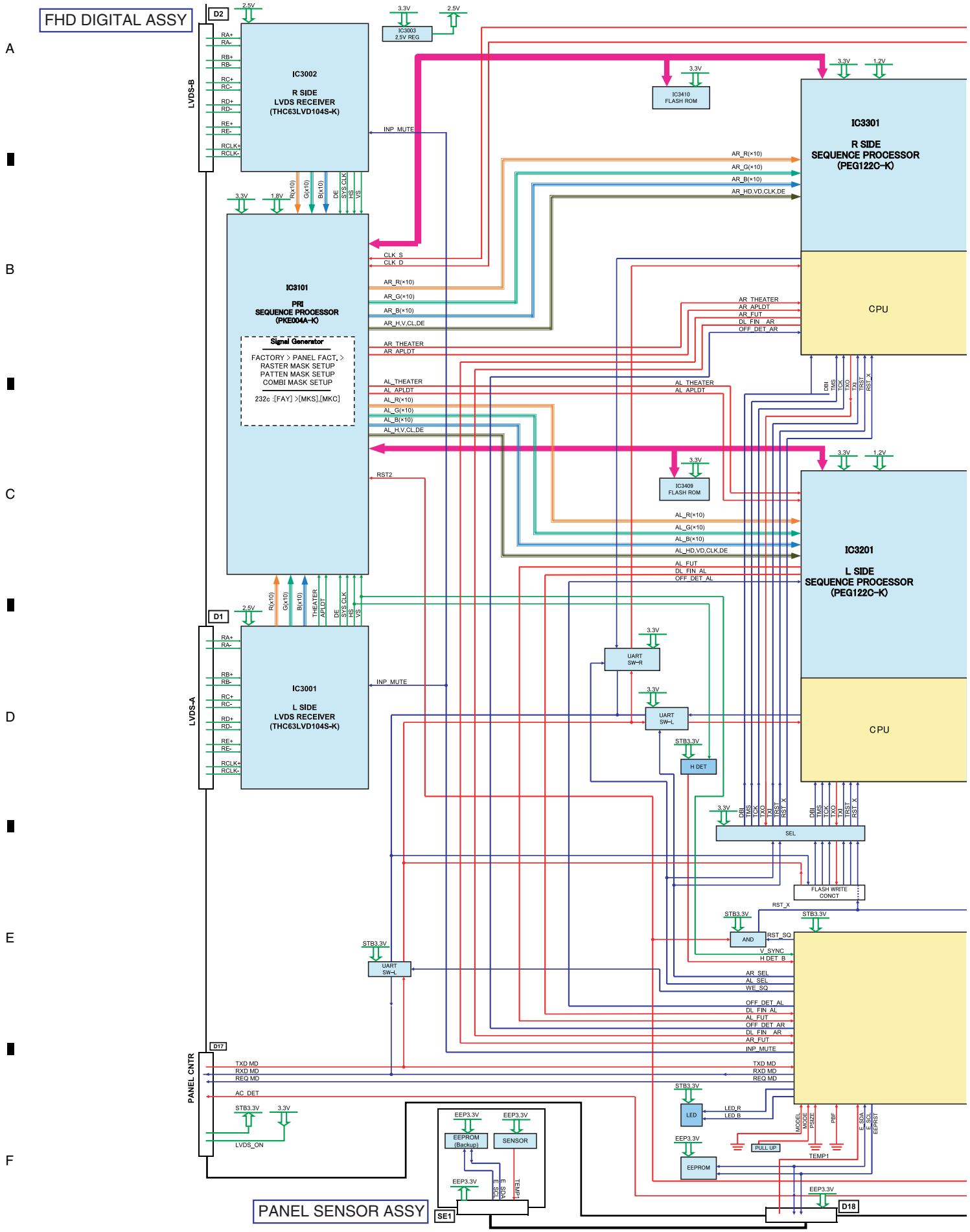


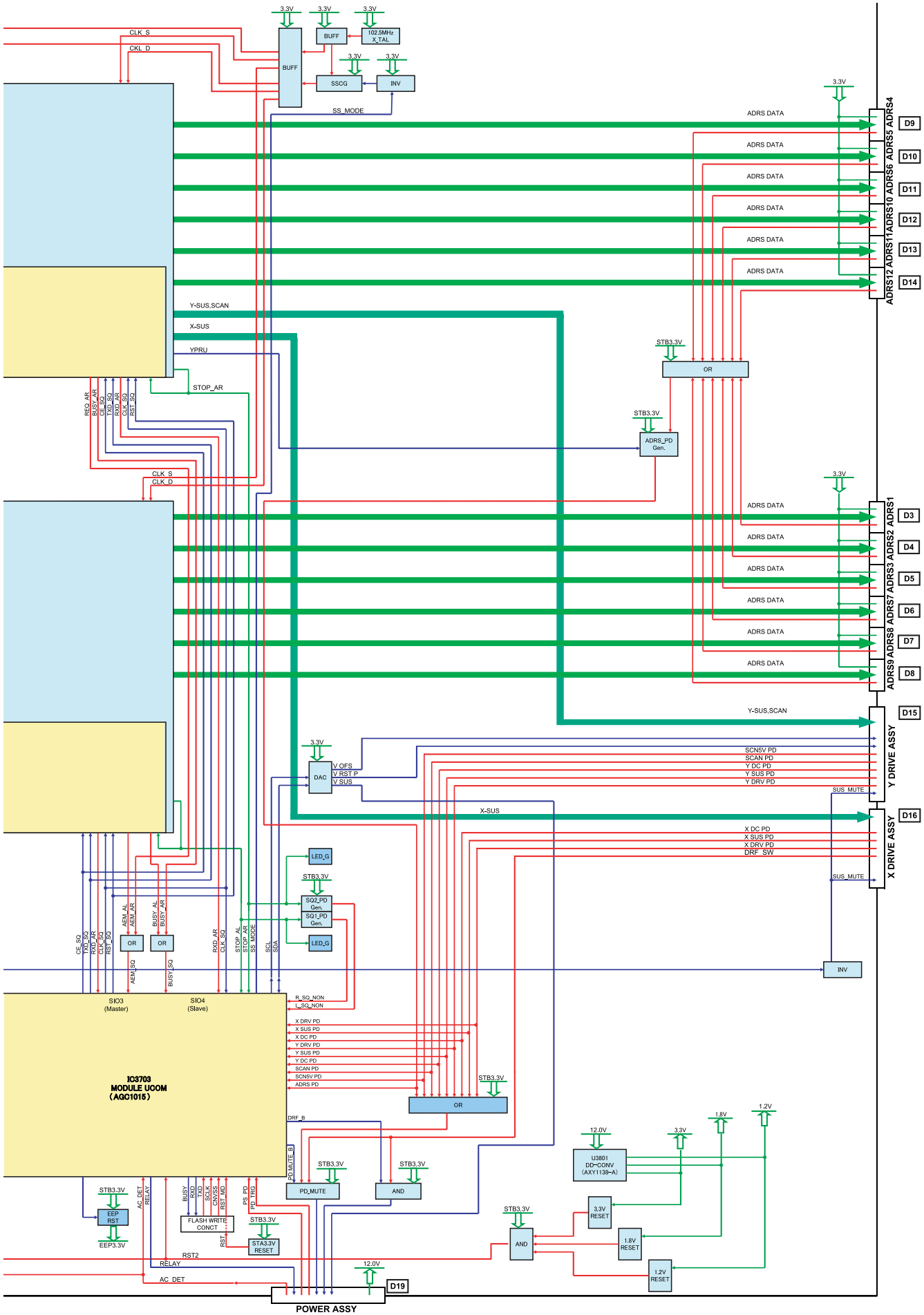
■ Y Drive power supply map



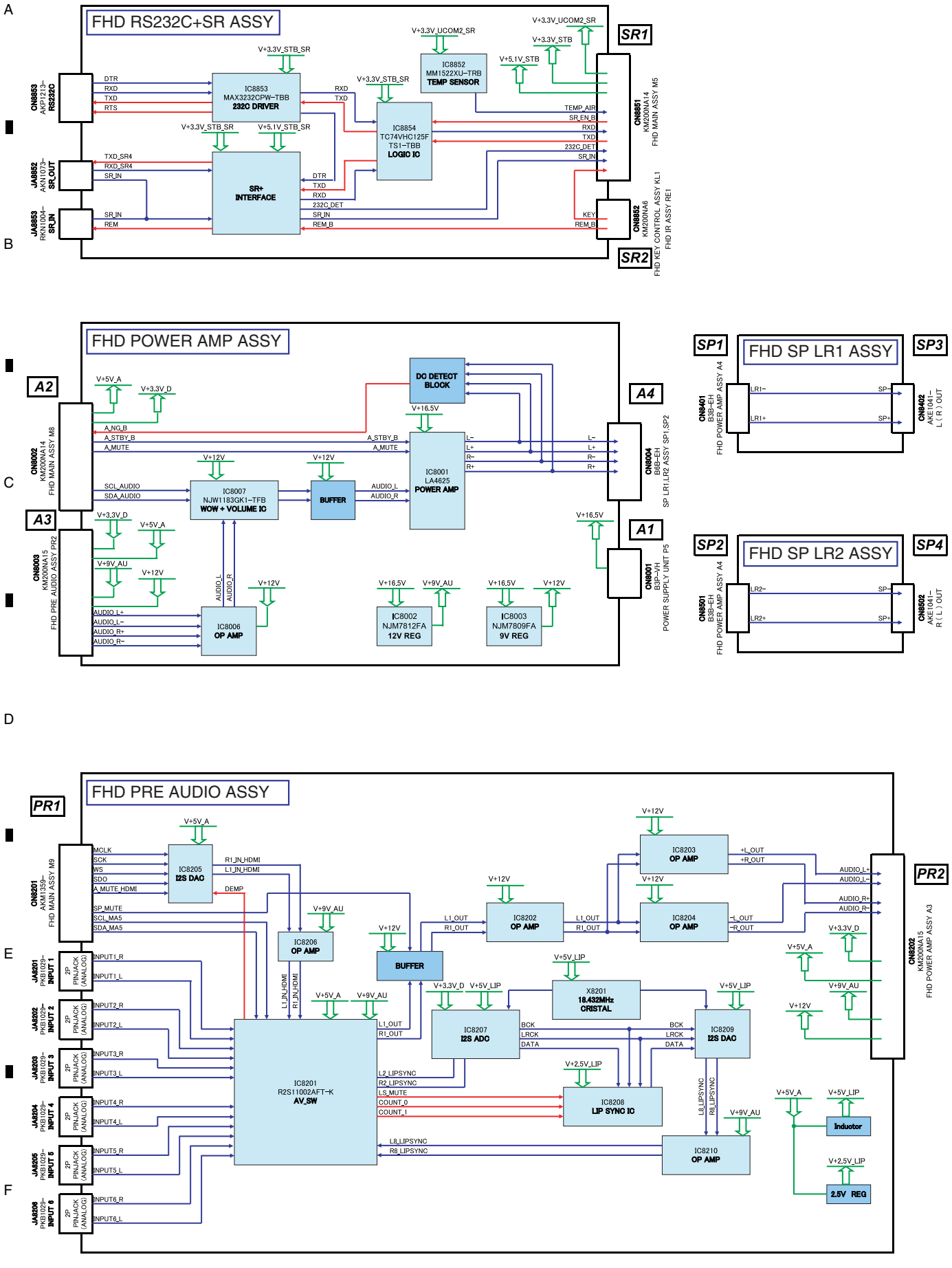
• VOFS and VPRST DC/DC converter are electric Vol control.

4.6 FHD DIGITAL AND PANEL SENSOR ASSYS

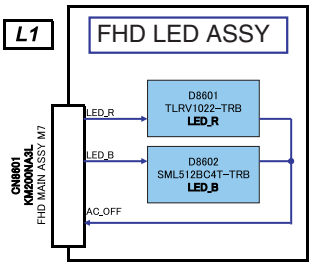


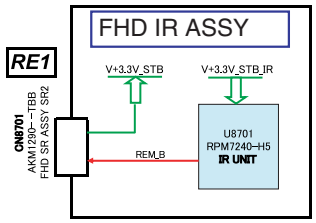

3.3V
BUFF
102.5MHz X_TAL
SSCG
INV
CLK_S
CKL_D
SS_MODE
ADRS DATA
D9
D10
D11
D12
D13
D14
ADRS12 ADRS11 ADRS10 ADRS6 ADRS5 ADRS4
Y-SUS,SCAN
X-SUS
YPRU
STOP_AR
REQ_AR
BUSY_AR
CE_SQ
TXD_SQ
RXD_AR
CLK_SQ
RST_SQ
STB3.3V
OR
ADRS_PD Gen.
D3
D4
D5
D6
D7
D8
ADRS9 ADRS8 ADRS7 ADRS3 ADRS2 ADRS1
D15
Y DRIVE ASSY
SCN5V PD
SCAN PD
Y DC PD
Y SUS PD
Y DRV PD
SUS_MUTE
DAC
V OFS
V RST P
V SUS
D16
X DRIVE ASSY
X DC PD
X SUS PD
X DRV PD
DRF_SW
LED_G
SQ2_PD Gen.
SQ1_PD Gen.
AEM_AL
AEM_AR
BUSY_AL
BUSY_AR
AEM_SQ
BUSY_SQ
STOP_AL
STOP_AR
SS_MODE
SCL
SDA
SIO3 (Master)
SIO4 (Slave)
R_SQ_NON
L_SQ_NON
IC3703
MODULE UCOM
(AGC1015)
X DRV PD
X SUS PD
X DC PD
Y DRV PD
Y SUS PD
Y DC PD
SCAN PD
SCN5V PD
ADRS PD
DRF_B
PD_MUTE_B
PD_MUTE
AND
U3801
DD-CONV
(AXY1138-A)
12.0V
3.3V
1.8V
1.2V
3.3V RESET
1.8V RESET
1.2V RESET
EEP RST
EEP3.3V
AC_DET
RELAY
BUSY
TXD
CNCLS
RST_MD
FLASH WRITE CONCT
RST
STA3.3V RESET
PS_PD
PD_TRG
RST2
D19
POWER ASSY

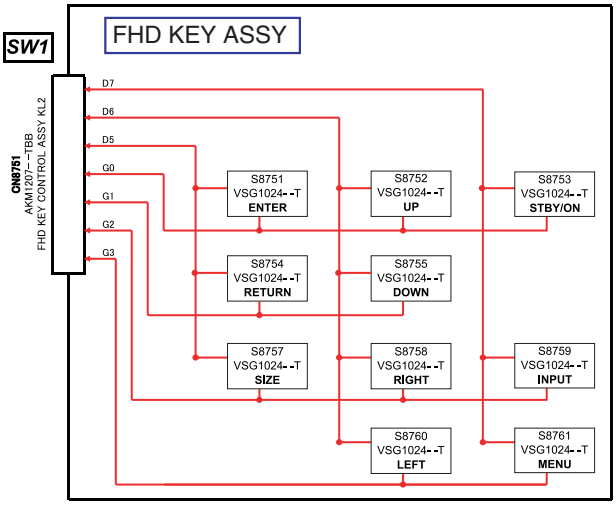
4.7 FHD FUKUGO ASSY (1/2)

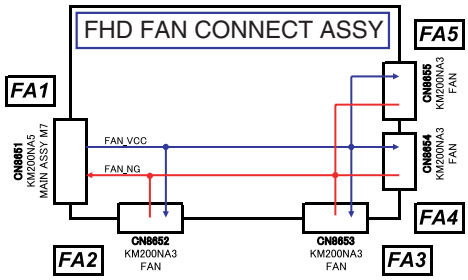


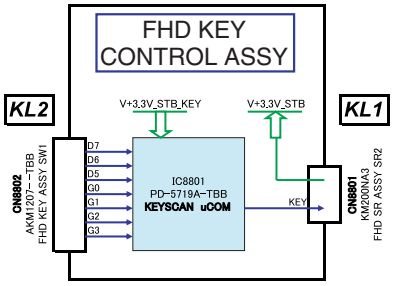
4.8 FHD FUKUGO ASSY (2/2)





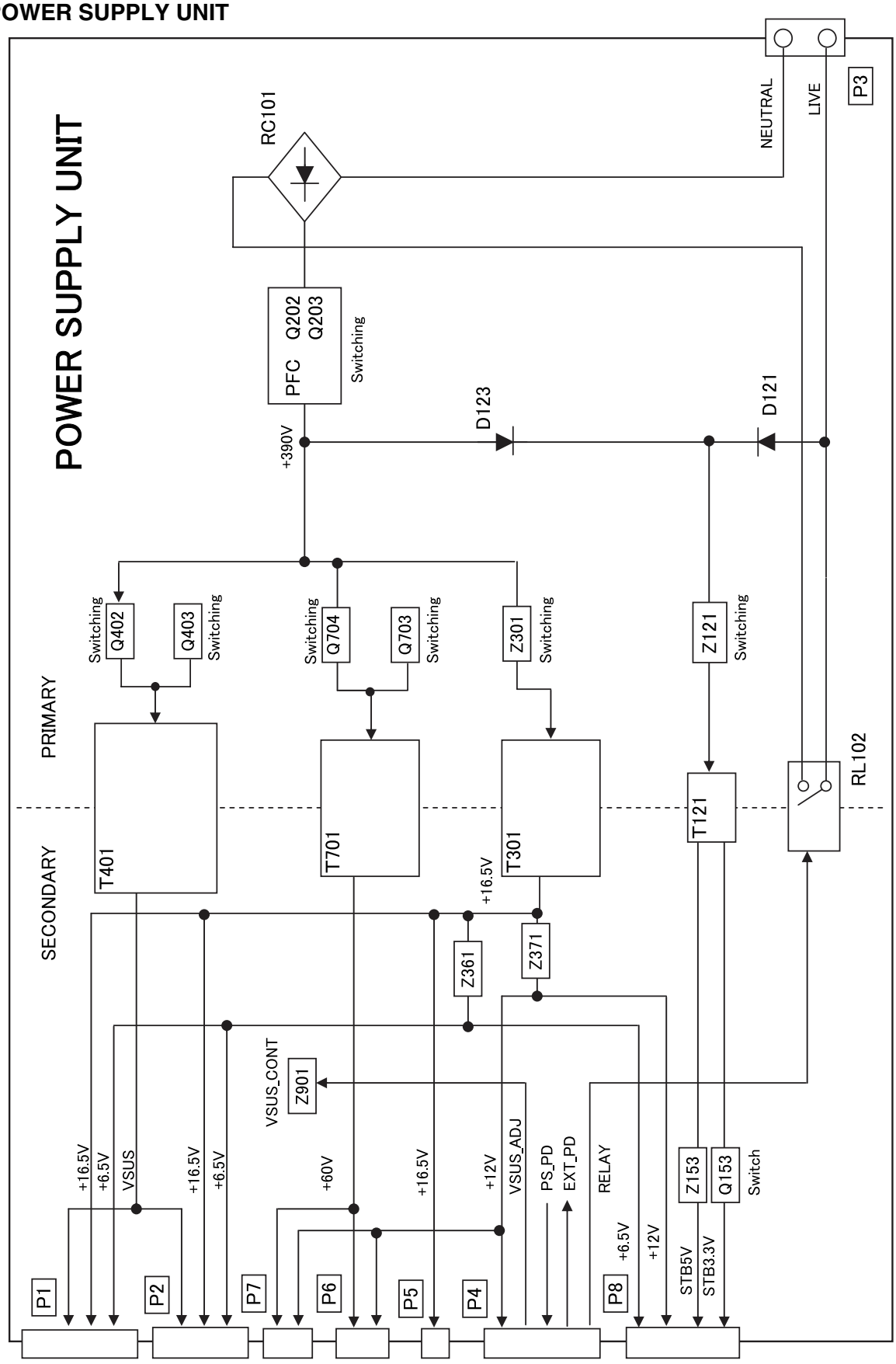






4.9 POWER SUPPLY UNIT

■ POWER SUPPLY UNIT



4.10 CONNECTOR PIN DESCRIPTION

FHD DIGITAL ASSY

D3 : CN3601 (AKM1348)
D4 : CN3602 (AKM1348)
D5 : CN3603 (AKM1348)
D9 : CN3607 (AKM1348)
D10 : CN3608 (AKM1348)
D11 : CN3609 (AKM1348)

50FHD ADDRESS A ASSY

AD1 : CN1502 (AKM1348)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	GND_D	0	GND_D	40	GND
2	DIV0	0 or 3.3	DIV0	39	Output timing control signal output
3	DIV1	0 or 3.3	DIV1	38	Output timing control signal output
4	GND_D	0	GND_D	37	GND
5	+3_3V	3.3	+3_3V	36	+3.3V power sypply
6	+3_3V	3.3	+3_3V	35	+3.3V power sypply
7	GND_D	0	GND_D	34	GND
8	LVDSGND	0	LVDSGND	33	GND
9	NC	-	NC	32	Non-connection termial
10	DP	1～1.4	DP	31	LVDS differential signal D+ output
11	DN	1～1.4	DN	30	LVDS differential signal D- output
12	NC	-	NC	29	Non-connection termial
13	LVDSGND	0	LVDSGND	28	GND
14	NC	-	NC	27	Non-connection termial
15	CLKP	1～1.4	CLKP	26	LVDS differential signal CLK+ output
16	CLKN	1～1.4	CLKN	25	LVDS differential signal CLK- output
17	NC	-	NC	24	Non-connection termial
18	LVDSGND	0	LVDSGND	23	GND
19	NC	-	NC	22	Non-connection termial
20	CP	1～1.4	CP	21	LVDS differential signal C+ output
21	CN	1～1.4	CN	20	LVDS differential signal C- output
22	NC	-	NC	19	Non-connection termial
23	LVDSGND	0	LVDSGND	18	GND
24	NC	-	NC	17	Non-connection termial
25	BP	1～1.4	BP	16	LVDS differential signal B+ output
26	BN	1～1.4	BN	15	LVDS differential signal B- output
27	NC	-	NC	14	Non-connection termial
28	LVDSGND	0	LVDSGND	13	GND
29	NC	-	NC	12	Non-connection termial
30	AP	1～1.4	AP	11	LVDS differential signal A+ output
31	AN	1～1.4	AN	10	LVDS differential signal A- output
32	NC	-	NC	9	Non-connection termial
33	LVDSGND	0	LVDSGND	8	GND
34	GND_D	0	GND_D	7	GND
35	NC	-	NC	6	Non-connection termial
36	NC	-	NC	5	Non-connection termial
37	GND_D	0	GND_D	4	GND
38	GND_D	0	GND_D	3	GND
39	ADRPD	0	ADRPD	2	Address PD signal input
40	NC	-	NC	1	Non-connection termial

FHD DIGITAL ASSY

D6 : CN3604 (AKM1348)
D7 : CN3605 (AKM1348)
D8 : CN3606 (AKM1348)
D12 : CN3610 (AKM1348)
D13 : CN3611 (AKM1348)
D14 : CN3612 (AKM1348)

50FHD ADDRESS B ASSY

AD1 : CN1702 (AKM1348)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	GND_D	0	GND_D	40	GND
2	DIV0	0 or 3.3	DIV0	39	Output timing control signal output
3	DIV1	0 or 3.3	DIV1	38	Output timing control signal output 4 GND_D 0
GND_D	37	GND			
5	+3_3V	3.3	+3_3V	36	+3.3V power sypply
6	+3_3V	3.3	+3_3V	35	+3.3V power sypply
7	GND_D	0	GND_D	34	GND
8	LVDSGND	0	LVDSGND	33	GND
9	NC	-	NC	32	Non-connection termial
10	DP	1～1.4	DP	31	LVDS differential signal D+ output
11	DN	1～1.4	DN 3	0	LVDS differential signal D- output
12	NC	-	NC	29	Non-connection termial
13	LVDSGND	0	LVDSGND	28	GND
14	NC	-	NC	27	Non-connection termial
15	CLKP	1～1.4	CLKP	26	LVDS differential signal CLK+ output
16	CLKN	1～1.4	CLKN	25	LVDS differential signal CLK- output
17	NC	-	NC	24	Non-connection termial
18	LVDSGND	0	LVDSGND	23	GND
19	NC	-	NC	22	Non-connection termial
20	CP	1～1.4	CP	21	LVDS differential signal C+ output
21	CN	1～1.4	CN	20	LVDS differential signal C- output
22	NC	-	NC	19	Non-connection termial
23	LVDSGND	0	LVDSGND	18	GND
24	NC	-	NC	17	Non-connection termial
25	BP	1～1.4	BP	16	LVDS differential signal B+ output
26	BN	1～1.4	BN	15	LVDS differential signal B- output
27	NC	-	NC	14	Non-connection termial
28	LVDSGND	0	LVDSGND 1	3	GND
29	NC	-	NC	12	Non-connection termial
30	AP	1～1.4	AP	11	LVDS differential signal A+ output
31	AN	1～1.4	AN	10	LVDS differential signal A- output
32	NC	-	NC	9	Non-connection termial
33	LVDSGND	0	LVDSGND	8	GND
34	GND_D	0	GND_D	7	GND
35	NC	-	NC	6	Non-connection termial
36	NC	-	NC	5	Non-connection termial
37	GND_D	0	GND_D	4	GND
38	GND_D	0	GND_D	3	GND
39	ADRPD	0	ADRPD	2	Address PD signal input
40	NC	-	NC	1	Non-connection termial

FHD DIGITAL ASSY			50FHD X DRIVE ASSY		
D16 : CN3613 (AKM1348)			X1: CN1001 (AKM1348)		
Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	XDD_PD	0	XDD_PD	40	X DRIVE PD signal input
2	NC	-	NC	39	Non-connection termial
3	DGND	0	DGND	38	GND
4	XSUS-B	0～3.3	XSUS-B	37	X DRIVE control signal output
5	DGND	0	DGND	36	GND
6	XSUS-U	0～3.3	XSUS-U	35	X DRIVE control signal output
7	DGND	0	DGND	34	GND
8	XSUS-D	0～3.3	XSUS-D	33	X DRIVE control signal output
9	DGND	0	DGND	32	GND
10	XSUS-G	0～3.3	XSUS-G	31	X DRIVE control signal output
11	DGND	0	DGND	30	GND
12	XNR-D	0～3.3	XNR-D	29	X DRIVE control signal output
13	DGND	0	DGND	28	GND
14	XSUS-MSK	0～3.3	XSUS-MSK	27	X DRIVE control signal output
15	DGND	0	DGND	26	GND
16	SUS_MUTE	0～5.0	SUS_MUTE	25	X DRIVE mute signal input
17	DGND	0	DGND	24	GND
18	XDRV_PD	0	XDRV_PD	23	X DRIVE PD signal input
19	DGND	0	DGND	22	GND
20	XResv2	-	XResv2	21	X DRIVE control signal output (Reserve)
21	XResv3	-	XResv3	20	X DRIVE control signal output (Reserve)
22	XResv4	-	XResv4	19	X DRIVE control signal output (Reserve)
23	DGND	0	DGND	18	GND
24	NC	-	NC	17	Non-connection termial
25	NC	-	NC	16	Non-connection termial
26	NC	-	NC	15	Non-connection termial
27	NC	-	NC	14	Non-connection termial
28	NC	-	NC	13	Non-connection termial
29	NC	-	NC	12	Non-connection termial
30	NC	-	NC	11	Non-connection termial
31	NC	-	NC	10	Non-connection termial
32	NC	-	NC	9	Non-connection termial
33	NC	-	NC	8	Non-connection termial
34	NC	-	NC	7	Non-connection termial
35	NC	-	NC	6	Non-connection termial
36	NC	-	NC	5	Non-connection termial
37	NC	-	NC	4	Non-connection termial
38	DRF_SW	0～3.3	DRF_SW	3	DRIVE OFF signal input
39	NC	-	NC	2	Non-connection termial
40	XSUS_PD	0	XSUS_PD	1	X DRIVE PD signal input

FHD DIGITAL ASSY			50FHD Y DRIVE ASSY		
D15 : CN3614 (AKM1348)			Y1: CN2001 (AKM1348)		
Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	SCN5V_PD	0	SCN5V_PD	40	Y DRIVE PD signal input
2	NC	-	NC	39	Non-connection termial
3	CLK1	0～3.3	CLK1	38	SCAN control signal output
4	SI_H	0～3.3	SI_H	37	SCAN control signal output
5	SI_L	0～3.3	SI_L	36	SCAN control signal output
6	DGND	0	DGND	35	GND
7	CLR	0～3.3	CLR	34	SCAN control signal output
8	CLK2	0～3.3	CLK2	33	SCAN control signal output
9	DGND	0	DGND	32	GND
10	LE	0～3.3	LE	31	SCAN control signal output
11	OC2_U	0～3.3	OC2_U	30	SCAN control signal output
12	OC1	0～3.3	OC1	29	SCAN control signal output
13	DGND	0	DGND	28	GND
14	YSUS-B	0～3.3	YSUS-B	27	Y DRIVE control signal output
15	YSUS-U	0～3.3	YSUS-U	26	Y DRIVE control signal output
16	DGND	0	DGND	25	GND
17	YSUS-D	0～3.3	YSUS-D	24	Y DRIVE control signal output
18	YSUS-G	0～3.3	YSUS-G	23	Y DRIVE control signal output
19	DGND	0	DGND	22	GND
20	YPR-U	0～3.3	YPR-U	21	Y DRIVE control signal output
21	SUS_MUTE	0～5.0	SUS_MUTE	20	Y DRIVE mute signal output
22	DGND	0	DGND	19	GND
23	YSUS-MSK	0～3.3	YSUS-MSK	18	Y DRIVE control signal output
24	YNRST	0～3.3	YNRST	17	Y DRIVE control signal output
25	YRSV2	-	YRSV2	16	Y DRIVE control signal output (Reserve)
26	DGND	0	DGND	15	GND
27	YNOFS	0～3.3	YNOFS	14	Y DRIVE control signal output
28	YRSV3	-	YRSV3	13	Y DRIVE control signal output (Reserve)
29	YSOFT-D	0～3.3	YSOFT-D	12	Y DRIVE control signal output
30	OC2_D	0～3.3	OC2_D	11	SCAN control signal output
31	DGND	0	DGND	10	GND
32	VOFS_ADJ	0～3.3	VOFS_ADJ	9	Vofs offset adjustment signal output
33	VYPRST_ADJ	0～3.3	VYPRST_ADJ	8	Reset voltage adjustment signal output
34	DGND	0	DGND	7	GND
35	NC	-	NC	6	Non-connection termial
36	SCAN_PD	0	SCAN_PD	5	Y DRIVE PD signal input
37	YDD_PD	0	YDD_PD	4	Y DRIVE PD signlal input
38	YSUS_PD	0	YSUS_PD	3	Y DRIVE PD signlal input
39	NC	-	NC	2	Non-connection termial
40	YDRV_PD	0	YDRV_PD	1	Y DRIVE PD signal input

FHD MAIN ASSY M1 : CN4006 (KM200NA11) ⇔ **POWER SUPPLY UNIT** P8: - (B11-PH-S)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	V+12V	12.1	+12V	1	12V power supply
2	V+12V	12.1	+12V	2	12V power supply
3	GND	0	GND_D	3	GND
4	GND	0	GND_D	4	GND
5	V+6_5V	6.6	+6_5V	5	6.5V power supply
6	V+6_5V	6.6	+6_5V	6	6.5V power supply
7	GND	0	GND_D	7	GND
8	GND	0	GND_D	8	GND
9	STB5V	5.0	STB5V	9	Standby 5.1V power supply
10	STB3_3V	3.3	STB3_3V	10	Standby 3.3V power supply
11	GND_STB	0	GND_STB	11	GND

FHD MAIN ASSY M2 : CN4207 (AKM1278) ⇔ **FHD DIGITAL ASSY** D17: CN3703 (AKM1278)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	V+3_3V_UCOM2	3.3	STB3.3V	1	3.3V power supply for main microcomputer/module microcomputer
2	AC_DET	3.2	AC_DET	2	AC detected signal input
3	MD_REQ	0	REQ_MD	3	Communication demand on a Module microcomputer
4	MD_RTXD	0-3.3	RXD_MD	4	UART Communication data input demand with a Module microcomputer
5	MD_TRXD	0-3.3	TXD_MD	5	UART Communication data output demand with a Module microcomputer
6	LVDS_ON	3.0	LVDS_ON	6	LVDS IC output control signal
7	GND	0	GND_D	7	GND

FHD MAIN ASSY M3 : CN4205 (AKM1239) ⇔ **FHD DIGITAL ASSY** D1: CN3001 (AKM1239)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	GND	0	GND	31	GND
2	GND	0	GND	30	GND
3	GND	0	GND	29	GND
4	GND	0	GND	28	GND
5	GND	0	GND	27	GND
6	GND	0	GND	26	GND
7	GND	0	GND	25	GND
8	MDL_EP	1.1 ～1.5	MDL_EP	24	L for LVDS differential signal TE + output
9	MDL_EN	1.1 ～1.5	MDL_EN	23	L for LVDS differential signal TE - output
10	GND	0	GND	22	GND
11	MDL_DP	1.1 ～1.5	MDL_DP	21	L for LVDS differential signal TD + output
12	MDL_DN	1.1 ～1.5	MDL_DN	20	L for LVDS differential signal TD - output
13	GND	0	GND	19	GND
14	MDL_CLKP	1.1 ～1.5	MDL_CLKP	18	L for LVDS differential signal TCLK + output
15	MDL_CLKN	1.1 ～1.5	MDL_CLKN	17	L for LVDS differential signal TCLK - output
16	GND	0	GND	16	GND
17	MDL_CP	1.1 ～1.5	MDL_CP	15	L for LVDS differential signal TC + output
18	MDL_CN	1.1 ～1.5	MDL_CN	14	L for LVDS differential signal TC - output
19	GND	0	GND	13	GND
20	MDL_BP	1.1 ～1.5	MDL_BP	12	L for LVDS differential signal TB + output
21	MDL_BN	1.1 ～1.5	MDL_BN	11	L for LVDS differential signal TB - output
22	GND	0	GND	10	GND
23	MDL_AP	1.1 ～1.5	MDL_AP	9	L for LVDS differential signal TA + output
24	MDL_AN	1.1 ～1.5	MDL_AN	8	L for LVDS differential signal TA - output
25	GND	0	GND	7	GND
26	GND	0	GND	6	GND
27	GND	0	GND	5	GND
28	GND	0	GND	4	GND
29	GND	0	GND	3	GND
30	GND	0	GND	2	GND
31	GND	0	GND	1	GND

FHD MAIN ASSY M4 : CN4206 (AKM1239) ⟷ **FHD DIGITAL ASSY** D2: CN3002 (AKM1239)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	GND	0	GND	31	GND
2	GND	0	GND	30	GND
3	GND	0	GND	29	GND
4	GND	0	GND	28	GND
5	GND	0	GND	27	GND
6	GND	0	GND	26	GND
7	GND	0	GND	25	GND
8	MDR_EP	1.1-1.5	MDR_EP	24	R for LVDS differential signal TE+ output
9	MDR_EN	1.1-1.5	MDR_EN	23	R for LVDS differential signal TE- output
10	GND	0	GND	22	GND
11	MDR_DP	1.1-1.5	MDR_DP	21	R for LVDS differential signal TD+ output
12	MDR_DN	1.1-1.5	MDR_DN	20	R for LVDS differential signal TD- output
13	GND	0	GND	19	GND
14	MDR_CLKP	1.1-1.5	MDR_CLKP	18	R for LVDS differential signal TCLK+ output
15	MDR_CLKN	1.1-1.5	MDR_CLKN	17	R for LVDS differential signal TCLK- output
16	GND	0	GND	16	GND
17	MDR_CP	1.1-1.5	MDR_CP	15	R for LVDS differential signal TC+ output
18	MDR_CN	1.1-1.5	MDR_CN	14	R for LVDS differential signal TC- outputt
19	GND	0	GND	13	GND
20	MDR_BP	1.1-1.5	MDR_BP	12	R for LVDS differential signal TB+ output
21	MDR_BN	1.1-1.5	MDR_BN	11	R for LVDS differential signal TB- output
22	GND	0	GND	10	GND
23	MDR_AP	1.1-1.5	MDR_AP	9	R for LVDS differential signal TA+ output
24	MDR_AN	1.1-1.5	MDR_AN	8	R for LVDS differential signal TA- output
25	GND	0	GND	7	GND
26	GND	0	GND	6	GND
27	GND	0	GND	5	GND
28	GND	0	GND	4	GND
29	GND	0	GND	3	GND
30	GND	0	GND	2	GND
31	GND	0	GND	1	GND

FHD MAIN ASSY M5 : CN4009 (KM200NA14) ⟷ **FHD RS232C+SR ASSY** SR1: CN8851 (KM200NA14)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	GND	0	GND	1	GND
2	V+3_3V_UCOM2	3.3	V+3_3V_UCOM2	2	3.3V power supply for main microcomputer
3	TEMP_AIR	0.4-0.9	TEMP_AIR	3	Outside temperature sensor DC input
4	GND	0	GND	4	GND
5	SR_IN	0-3.3	SR_IN	5	Remote control signal input
6	SR_EN_B	0-3.3	SR_EN_B	6	232C/SR+change signal
7	GND	0	GND	7	GND
8	KEY	0-3.3	KEY	8	Key signal input
9	GND	0	GND	9	GND
10	232C_DET	0～3.3	232C_DET	10	232C detected signal input
11	RXD	0～3.3	RXD	11	RS232C data input/ucom rewriting
12	TXD	0～3.3	TXD	12	RS232C data output/ucom rewriting
13	V+3_3V_STB	3.3	V+3_3V_STB	13	Standby 3.3V power supply
14	V+5_1V_STB	5.1	V+5_1V_STB	14	Standby 5.1V power supply

FHD MAIN ASSY M6 : CN4003 (AKM1276) ⟷ **FHD FAN CONNECT ASSY** FA1: CN8651 (KM200NA5)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	FAN_VCC	6.5～11.8	FAN_VCC	1	Power supply for FAN
2	FAN_VCC	6.5～11.8	FAN_VCC	2	Power supply for FAN
3	FAN_NG	0	FAN_NG	3	FAN NG signal input
4	GND	0	GND	4	GND
5	GND	0	GND	5	GND

FHD MAIN ASSY M7 : CN4203 (AKM1274) ⟷ **FHD LED ASSY** L1: CN8601 (KM200NA3L)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	LED_R	0	LED_R	1	LED control signal (Standby)
2	LED_B	2.9	LED_B	2	LED control signal (power ON)
3	AC_OFF	0	AC_OFF	3	AC_OFF detected signal

FHD MAIN ASSY M8 : CN4008 (KM200NA14) ⟷ **FHD POWER AMP ASSY** A2 : CN8002 (KM200NA14)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	A_NG_B	2.8	A_NG_B	1	DC detected signal
2	GND	0	GND	2	GND
3	V+9V_AU	0	V+9V_AU	3	9V power supply for audio (Non-connection termial)
4	GND	0	GND	4	GND
5	V+5V_A	5.0	V+5V_A	5	5V power supply for audio
6	GND	0	GND	6	GND
7	A_STBY_B	3.3	A_STBY_B	7	Audio amplifier standby control signal output
8	A_MUTE	0～2.8	A_MUTE	8	Audio amplifier mute signal output
9	GND	0	GND	9	GND
10	SCL_AUDIO	0～3.3	SCL_AUDIO	10	IIC communication for audios - clock output
11	SDA_AUDIO	0～3.3	SDA_AUDIO	11	IIC communication for audios - data input/output
12	GND	0	GND	12	GND
13	V+3_3V_D	3.3	V+3_3V_D	13	3.3V power supply for audio
14	GND	0	GND	14	GND

FHD MAIN ASSY M9 : CN6801 (AKP1299) ⟷ **FHD PRE AUDIO ASSY** PR1 : CN8201 (AKM1359)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	A_MUTE_HDMI	3.3	A_MUTE_HDMI	1	HDMI Voice mute signal
2	SDO	0～3.3	SDO	2	Audio digital data
3	WS	0～3.3	WS	3	Data latch eneburu
4	SCK	0～3.3	SCK	4	Audio data bit clock
5	GND	0	GND	5	GND
6	MCLK	0～3.3	MCLK	6	System clock
7	GND	0	GND	7	GND
8	SP_MUTE	0	SP_MUTE	8	Voice signal (mute signal)
9	M_MODE	0	M_MODE	9	Mode distinction signal of operation
10	SDA_MA5	0～5.0	SDA_MA5	10	IIC communication for audios - data input/output
11	SCL_MA5	0～5.0	SCL_MA5	11	IIC communication for audios - clock output

FHD Y DRIVE ASSY — Y7: CN2355 (AKM1276), Y9: CN2355 (AKM1276)

⟷

FHD ADDRESS A/B ASSY — AD2: CN1701 (AKM1276), AD2: CN1501 (AKM1276)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	+60V	60	+60V	5	60V power supply
2	GND_ADR	0	GND_ADR	4	GND
3	8V	8	8V	3	8V power supply
4	5V	5	5V	2	5V power supply
5	GND_D	0	GND_D	1	GND

FHD Y DRIVE ASSY — Y6: CN2354 (AKM1281), Y8: CN2356 (AKM1281)

⟷

FHD ADDRESS A/B ASSY — AD2: CN1701 (AKM1276), AD2: CN1501 (AKM1276)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	GND_D	0	GND_D	1	GND
2	5V	5	5V	2	5V power supply
3	8V	8	8V	3	8V power supply
4	GND_ADR	0	GND_ADR	4	GND
5	+60V	60	+60V	5	60V power supply
6	+60V	60	+60V	1	60V power supply
7	GND_ADR	0	GND_ADR	2	GND
8	8V	8	8V	3	8V power supply
9	5V	5	5V	4	5V power supply
10	GND_D	0	GND_D	5	GND

FHD Y DRIVE ASSY — Y2: CN2402 (AKM1200)

⟷

FHD SCAN B ASSY — SB1: CN2801 (AKP1261)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	VH	130	VH	1	Power supply for VH
2	VH	130	VH	2	Power supply for VH
3	NC	-	NC	3	Non-connection termial
4	NC	-	NC	4	Non-connection termial
5	NC	-	NC	5	Non-connection termial
6	GNDH	-60 ～ 300	GNDH	6	GND(PSUS)
7	SI_H	-60 ～ 300	SI_H	7	SI_H signal
8	CLR	-60 ～ 300	CLR	8	CLR signal
9	OC2	-60 ～ 300	OC2	9	OC2 signal
10	OC1	-60 ～ 300	OC1	10	OC1 signal
11	CLK1	-60 ～ 300	CLK1	11	CLK1 signal
12	LE	-60 ～ 300	LE	12	LE signal
13	GNDH	-60 ～ 300	GNDH	13	GND(PSUS)
14	GNDH_R	-60 ～ 300	GNDH_R	14	GND(PSUS). Connector detection
15	IC5V	-60 ～ 300	IC5V	15	IC5V power supply

FHD Y DRIVE ASSY Y3: CN2401 (AKM1200) ⟷ **FHD SCAN A ASSY** SA1: CN2701 (AKP1261)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	VH	130	VH	1	Power supply for VH
2	VH	130	VH	2	Power supply for VH
3	NC	-	NC	3	Non-connection termial
4	NC	-	NC	4	Non-connection termial
5	NC	-	NC	5	Non-connection termial
6	GNDH	-60 ～ 300	GNDH	6	GND(PSUS)
7	SI_L	-60 ～ 300	SI_L	7	SI_L signal
8	CLR	-60 ～ 300	CLR	8	CLR signal
9	OC2	-60～300	OC2	9	OC2 signal
10	OC1	-60～300	OC1	10	OC1 signal
11	CLK2	-60～300	CLK2	11	CLK2 signal
12	LE	-60～300	LE	12	LE signal
13	GNDH	-60～300	GNDH	13	GND(PSUS)
14	GNDH_R	-60～300	GNDH_R	14	GND(PSUS).Connector detection
15	IC5V	-60～300	IC5V	15	IC5V power supply

FHD Y DRIVE ASSY Y4: CN2351 (B9B-EH) ⟷ **POWER SUPPLY UNIT** P1: (B9B-EH)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	NC	-	NC	1	Non-connection termial
2	+16_5V	16.5	+16_5V	2	16.5V power supply
3	+6_5V	6.5	+6_5V	3	6.5V power supply
4	GND_D	0	GND_D	4	GND
5	GND_SUS	0	GND_SUS	5	GND
6	GND_SUS	0	GND_SUS	6	GND
7	NC	-	NC	7	Non-connection termial
8	VSUS	205	VSUS	8	VSUS power supply
9	VSUS	205	VSUS	9	VSUS power supply

FHD Y DRIVE ASSY Y5 : CN2353 (AKM1277) ⟷ **POWER SUPPLY UNIT** P7: (B7B-PH-K-S)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	+60V	60	+60V	1	60V power supply
2	+60V	60	+60V	2	60V power supply
3	NC	-	NC	3	Non-connection termial
4	GND_ADR	0	GND_ADR	4	GND
5	+12V	12	+12V	5	12V power supply
6	GND_D	0	GND_D	6	GND
			NC	7	Non-connection termial

FHD X DRIVE ASSY X2: (CN1206 B8B-EH) ⟷ **POWER SUPPLY UNIT** P2: (B8B-EH)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	+16_5V	16.5	+16_5V	1	16.5V power supply
2	+6_5V	6.5	+6_5V	2	6.5V power supply
3	GND_D	0	GND_D	3	GND
4	GND_SUS	0	GND_SUS	4	GND
5	GND_SUS	0	GND_SUS	5	GND
6	NC	-	NC	6	Non-connection termial
7	VSUS	205	VSUS	7	VSUS power supply
8	VSUS	205	VSUS	8	VSUS power supply

FHD X DRIVE ASSY X5: CN1204 (AKM1277) ⟷ **POWER SUPPLY UNIT** P6: (B6B-PH-K-S)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	+60V	60	+60V	1	60V power supply
2	+60V	60	+60V	2	60V power supply
3	NC	-	NC	3	Non-connection termial
4	GND_ADR	0	GND_ADR	4	GND
5	+12V	12	+12V	5	12V power supply
6	GND_D	0	GND_D	6	GND

FHD X DRIVE ASSY X4: CN1202 (AKM1276), X7: CN1205 (AKM1276) ⟷ **FHD ADDRESS A/B ASSY** AD2: CN1501 (AKM1276), AD2: CN1701 (AKM1276)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	+60V	60	+60V	5	60V power supply
2	GND_ADR	0	GND_ADR	4	GND
3	8V	8	8V	3	8V power supply
4	5V	5	5V	2	5V power supply
5	GND_D	0	GND_D	1	GND

FHD X DRIVE ASSY X3: CN1201 (AKM1281), X6: CN1203 (AKM1281) ⟷ **FHD ADDRESS A/B ASSY** AD2: CN1501 (AKM1276), AD2: CN1701 (AKM1276)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	GND_D	0	GND_D	1	GND
2	5V	5	5V	2	5V power supply
3	8V	8	8V	3	8V power supply
4	GND_ADR	0	GND_ADR	4	GND
5	+60V	60	+60V	5	60V power supply
6	+60V	60	+60V	1	60V power supply
7	GND_ADR	0	GND_ADR	2	GND
8	8V	8	8V	3	8V power supply
9	5V	5	5V	4	5V power supply
10	GND_D	0	GND_D	5	GND

FHD POWER AMP ASSY A1: CN8001 (B3P-VH) ⟷ **POWER SUPPLY UNIT** P5: - (B3P-VH)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	V+16_5V	16.5	16.5V	1	16.5V power supply
2	GNDP	0	GND-D	2	GND
3	GNDP	0	GND-D	3	GND

FHD POWER AMP ASSY A3: CN8003 (KM200NA15) ⟷ **FHD PRE AUDIO ASSY** PR2: CN8202 (KM200NA15)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	V+3_3V_D	3.3	V+3_3V_D	1	3.3V power supply for audio
2	GND	0	GND	2	GND
3	V+5V_A	5	V+5V_A	3	5V power supply for audio
4	GND	0	GND	4	GND
5	V+9V_AU	9	V+9V_AU	5	9V power supply for audio
6	GND	0	GND	6	GND
7	V+12V	12	V+12V	7	12V power supply for audio
8	GND_A	0	GND_A	8	GND
9	AUDIO_L+	2.2 ～ 9.6	AUDIO_L+	9	small signal L+ ch
10	GND_A	0	GND_A	10	GND
11	AUDIO_L-	2.2～9.6	AUDIO_L-	11	small signal L- ch
12	GND_A	0	GND_A	12	GND
13	AUDIO_R+	2.2～9.6	AUDIO_R+	13	small signal R+ ch
14	GND_A	0	GND_A	14	GND
15	AUDIO_R-	2.2～9.6	AUDIO_R-	15	small signal R- ch

FHD POWER AMP ASSY A4: CN8004 (B6B-EH) ⟷ **FHD SP LR1 (LR2) ASSY** SP1: CN8401 (B3B-EH)

*SP LR1 ASS'Y and SP LR2 ASS'Y can be replaced.

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	L-	0	LR1-	1	POWER AMP output L-
2	L+	0	LR1+	2	POWER AMP output L+
3	GNDP	0	GNDP	3	GND

FHD POWER AMP ASSY A4: CN8004 (B6B-EH) ⟷ **FHD SP LR2 (LR1 ASSY** SP2: CN8401 (B3B-EH)

*SP LR1 ASS'Y and SP LR2 ASS'Y can be replaced.

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
4	R-	0	LR2-	1	POWER AMP output R-
5	R+	0	LR2+	2	POWER AMP output R+
6	GNDP	0	GNDP	3	GND

FHD SP LR1 (LR2) ASSY SP3: CN8402 (AKE1041-) ⟷ **SPEAKER L**

*SP LR1 ASS'Y and SP LR2 ASS'Y can be replaced.

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	SP-	0 ～16.5	-	-	SPEAKER output L-
2	SP+	0 ～16.5	-	-	SPEAKER output L+

FHD SP LR2 (LR1) ASSY SP4: CN8502 (AKE1041-) ⟷ **SPEAKER R**

*SP LR1 ASS'Y and SP LR2 ASS'Y can be replaced.

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	SP-	0 ～16.5	-	-	SPEAKER output R-
2	SP+	0 ～16.5	-	-	SPEAKER output R+

FHD FAN CONNECT ASSY FA2: CN8652 (KM200NA3) ⟷ **FAN** AXM1055

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	FAN_VCC	6.5-11.8	FAN_VCC	1	Power supply for FAN
2	FAN_NG	0	FAN_NG	2	FAN NG signal input
3	GND	0	GND	3	GND

FHD FAN CONNECT ASSY FA3: CN8653 (KM200NA3) ⟷ **FAN** AXM1056

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	FAN_VCC	6.5-11.8	FAN_VCC	1	Power supply for FAN
2	FAN_NG	0	FAN_NG	2	FAN NG signal input
3	GND	0	GND	3	GND

FHD FAN CONNECT ASSY FA4: CN8654 (KM200NA3) ⟷ **FAN** AXM1056

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	FAN_VCC	6.5-11.8	FAN_VCC	1	Power supply for FAN
2	FAN_NG	0	FAN_NG	2	FAN NG signal input
3	GND	0	GND	3	GND

FHD FAN CONNECT ASSY FA5: CN8655 (KM200NA3) ⟷ **FAN** AXM1055

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	FAN_VCC	6.5-11.8	FAN_VCC	1	Power supply for FAN
2	FAN_NG	0	FAN_NG	2	FAN NG signal input
3	GND	0	GND	3	GND

FHD RS232C+SR ASSY SR2: CN8852 (KM200NA6) ⟷ **FHD KEY CONTROL ASSY** KL1: CN8801 (KM200NA3)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	V+3_3V_STB	3.3	V+3_3V_STB	1	Standby 3.3V power supply
2	KEY	0-3.3	KEY	2	Key signal input
3	GND_SR	0	GND_SR	3	GND

FHD RS232C+SR ASSY SR2: CN8852 (KM200NA6) ⟷ **FHD IR ASSY** RE1: CN8701 (AKM1290)

Pin No.	Name	Voltage [V]	Name	Pin No.	Function
4	V+3_3V_STB	3.3	V+3_3V_STB	1	Standby 3.3V power supply
5	GND_SR	0	GND_SR	2	GND
6	REM_B	0-3.3	REM_B	3	Remote control signal input
-	-	-	NC	4	Non-connection termial

FHD KEY CONTROL ASSY KL2: CN8802 (AKM1207) ⟷ **FHD KEY ASSY** SW1: CN8751 (AKM1207)

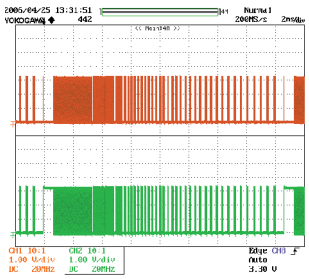
Pin No.	Name	Voltage [V]	Name	Pin No.	Function
1	D7	0 ～ 3.3	D7	8	KEY SCAN signal
2	D6	0 ～ 3.3	D6	7	KEY SCAN signal
3	D5	0 ～ 3.3	D5	6	KEY SCAN signal
4	G0	0 ～ 3.3	G0	5	KEY SCAN signal
5	G1	0 ～ 3.3	G1	4	KEY SCAN signal
6	G2	0 ～ 3.3	G2	3	KEY SCAN signal
7	G3	0 ～ 3.3	G3	2	KEY SCAN signal
8	GND_KEY	0	GND_KEY	1	GND

4.11 WAVEFORMS

● 50FHD ADDRESS ASSY

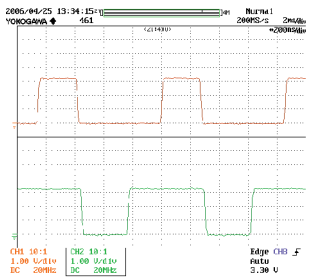
• ADR RESONANCE BLOCK

① input:VIDEO 60Hz
signal : COLOR BAR(MKSS17)
ch1 : ADR_B side-A test plane " B "
ch2 : ADR_D side-A test plane " D "
V : 1V/div H : 2ms/div



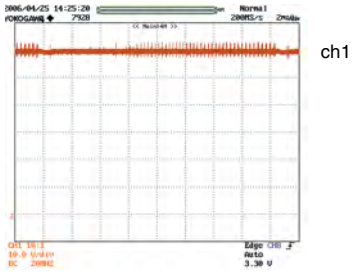
• Control signals of resonance circuit (1 Field)

② input :VIDEO 60Hz
signal : COLOR BAR (MKSS17)
ch1 : ADR_B side-A test plane " B "
ch2 : ADR_D side-A test plane " D "
V : 1V/div H : 200ns/div



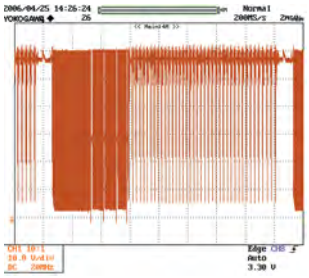
• Control signals of resonance circuit (2SF)

③ input :VIDEO 60Hz
signal :COLOR BAR(MKSS17)
ch1 :L1601(V+ADR5)(side-A through hole)
V : 10V/div H : 2ms/div



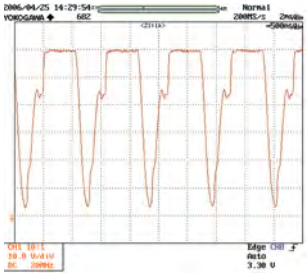
• VADR (1 Field)

④ input :VIDEO 60Hz
signal : Checkered pattern of Black- White (MKSS13)
ch1 : L1601(V+ADR5)(side-A through hole)
V: 10V/div H: 2ms/div



• VADR (1 Field)

⑤ input : VIDEO 60Hz
signal : Checkered pattern of Black- White(MKSS13)
ch1 : L1601(V+ADR5)(side-A through hole)
V: 10V/div H: 500ns/div

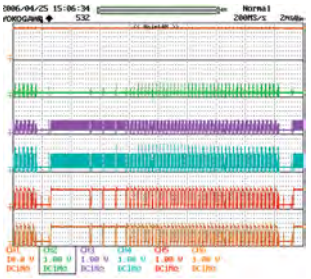


• VADR (2 SF)

● 50FHD ADDRESS ASSY

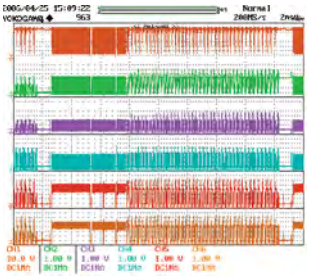
• ADR LOGIC BLOCK

① input:VIDEO 60Hz
signal : COLOR BAR(MKSS17)
ch1 : L1601(V+ADR5) (side-A through hole)
V : 10V/div H : 2ms/div
ch2 : IC1501 25pin (R_E) side-A test plane "R_E"
V : 1V/div H : 2ms/div
ch3 : IC1501 36pin (CLK) side-A test plane "CLK1"
V : 1V/div H : 2ms/div
ch4 : IC1501 29pin (LE_E) side-A test plane "LE_E"
V : 1V/div H : 2ms/div
ch5 : IC1501 43pin (HBLK) side-A test plane "HBLK"
V : 1V/div H : 2ms/div
ch6 : IC1501 42pin (LBLK) side-A test plane "LBLK"
V : 1V/div H : 2ms/div



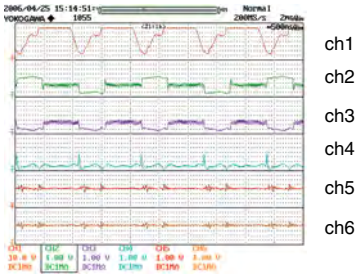
• Incoming signals of TCP(1Field)

② input: VIDEO 60Hz
signal : Checkered pattern of Black- White (MKSS13)
CH1 : L1601 (V+ADR5) (side-A through hole)
V : 10V/div H : 2ms/div
CH2 : IC1501 25pin (R_E) side-A test plane "R_E"
V : 1V/div H : 2ms/div
CH3 : IC1501 36pin (CLK) side-A test plane "CLK1"
V : 1V/div H : 2ms/div
CH4 : IC1501 29pin (LE_E) side-A test plane "LE_E"
V : 1V/div H : 2ms/div
CH5 : IC1501 43pin (HBLK) side-A test plane "HBLK"
V : 1V/div H : 2ms/div
CH6 : IC1501 42pin (LBLK) side-A test plane "LBLK"
V : 1V/div H : 2ms/div



• Incoming signals of TCP (1Field)

③ input : VIDEO
signal:Checkered pattern of Black- White (MKSS13)
CH1 : L1601(V+ADR5)(side-A through hole)
V : 10V/div H : 500ns/div
CH2 : IC1501 25pin (R_E) side-A test plane "R_E"
V : 1V/div H : 500ns/div
CH3 : IC1501 36pin (CLK) side-A test plane "CLK1"
V : 1V/div H : 500ns/div
CH4 : IC1501 29pin (LE_E) side-A test plane "LE_E"
V : 1V/div H : 500ns/div
CH5 : IC1501 43pin (HBLK) side-A test plane "HBLK"
V : 1V/div H : 500ns/div
CH6 : IC1501 42pin (LBLK) side-A test plane "LBLK"
V : 1V/div H : 500ns/div

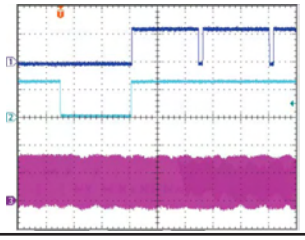


• Incoming signals of TCP (Resonance part)

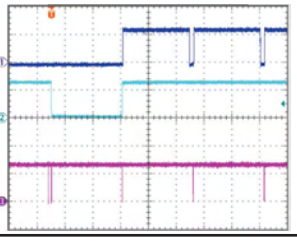
● FHD DIGITAL ASSY

• LVDS RX BLOCK

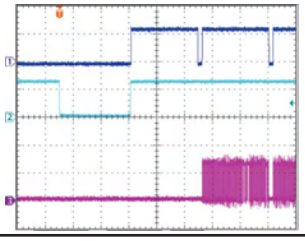
① CH1 : IC3001 47pin (LVL_DE)
CH2 : IC3001 45pin (LVL_VD)
CH3 : IC3001 31pin (LVL_CLK)
V : 2V/Div H : 4uS/Div



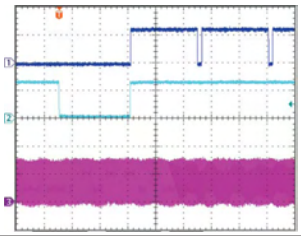
② CH1 : IC3001 47pin (LVL_DE)
CH2 : IC3001 45pin (LVL_VD)
CH3 : IC3001 46pin (LVL_HD)
V : 2V/Div H : 4uS/Div



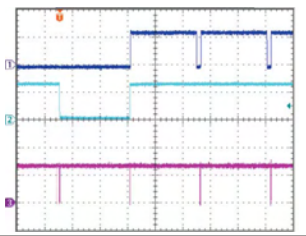
③ CH1 : IC3001 47pin (LVL_DE)
CH2 : IC3001 45pin (LVL_VD)
CH3 : IC3001 33pin (LVL_RA0)
V : 2V/DIV H : 4uS/DIV



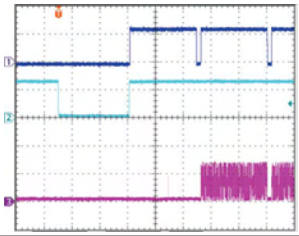
④ CH1 : IC3002 47pin (LVR_DE)
CH2 : IC3002 45pin (LVR_VD)
CH3 : IC3002 31pin (LVR_CLK)
V : 2V/DIV H : 4uS/DIV



⑤ CH1 : IC3002 47pin (LVR_DE)
CH2 : IC3002 45pin (LVR_VD)
CH3 : IC3002 46pin (LVR_HD)
V : 2V/DIV H : 4uS/DIV

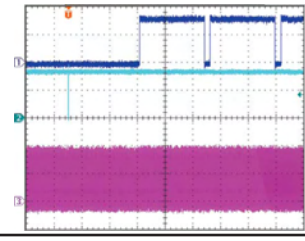


⑥ CH1 : IC3002 47pin (LVR_DE)
CH2 : IC3002 45pin (LVR_VD)
CH3 : IC3002 33pin (LVR_RA0)
V : 2V/DIV H : 4uS/DIV

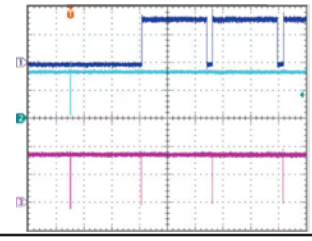


• SQ ASIC-L BLOCK

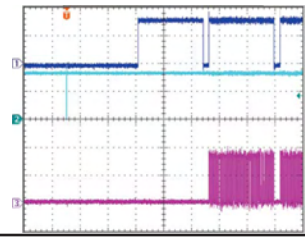
⑦ CH1 : R3129 3-4pin (AL_DE)
CH2 : R3129 5-6pin (AL_VD)
CH3 : R3154 (AL_CLK)
V : 2V/DIV H : 4uS/DIV



⑧ CH1 : R3129 3-4pin (AL_DE)
CH2 : R3129 5-6pin (AL_VD)
CH3 : R3129 7-8pin (AL_HD)
V : 2V/DIV H : 4uS/DIV

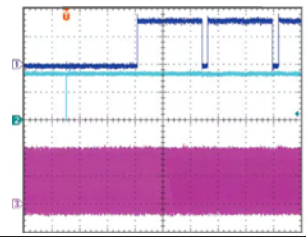


⑨ CH1 : R3129 3-4pin (AL_DE)
CH2 : R3129 5-6pin (AL_VD)
CH3 : R3132 5-6pin (AL_RA0)
V : 2V/DIV H : 4uS/DIV

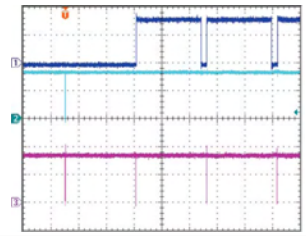


• SQ ASIC-R BLOCK

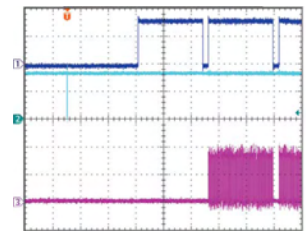
⑩ CH1 : R3148 5-6pin (AR_DE)
CH2 : R3148 1-2pin (AR_VD)
CH3 : R3155 (AR_CLK)
V : 2V/DIV H : 4uS/DIV



⑪ CH1 : R3148 5-6pin (AR_DE)
CH2 : R3148 1-2pin (AR_VD)
CH3 : R3148 3-4pin (AR_HD)
V : 2V/DIV H : 4uS/DIV

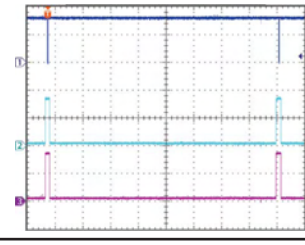


⑫ CH1 : R3148 5-6pin (AR_DE)
CH2 : R3148 1-2pin (AR_VD)
CH3 : R3145 5-6pin (AR_RA0)
V : 2V/DIV H : 4uS/DIV



• MODULE UCOM BLOCK

⑬ CH1 : IC3703 1pin (V_SYNC)
CH2 : IC3704 11pin (AL_STOP_SQ)
CH3 : IC3704 8pin (AR_STOP_SQ)
V : 2V/DIV H : 2mS/DIV

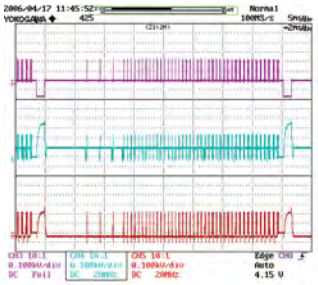


● 50FHD X DRIVE ASSY, 50FHD Y DRIVE ASSY, 50FHD SCAN A ASSY, 50FHD SCAN B ASSY

① ch3 R1222(XPSUS) - K1201(SUSGND)
V : 100V/div H : 2ms/div
(50FHD X DRIVE Ass'y)

ch4 K2818(ScanOUT) - K2301(SUSGND)
V : 100V/div H : 2ms/div
(50FHD SCAN B Ass'y HIGHSIDE)

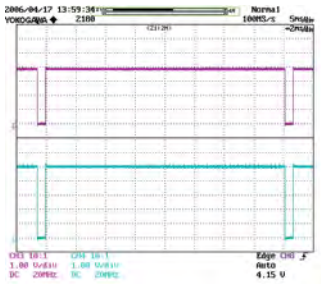
ch5 R2288(YPSUS) - KN2203(SUSGND)
V : 100V/div H : 2ms/div
(50FHD Y DRIVE Ass'y)



② ch3 K1012(XSUS-MSK) - K1002(DGND)
V : 1V/div H : 2ms/div

ch4 K1008(XNR-D) - K1002(DGND)
V : 1V/div H : 2ms/div

(50FHD X DRIVE Ass'y)



③ ch1 K2007(YNOFS) - K2014(DGND)
V : 1V/div H : 2ms/div

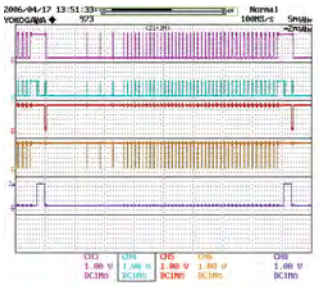
ch2 K2005(YSUS-MSK) - K2014(DGND)
V : 1V/div H : 2ms/div

ch3 K2004(YNRST) - K2014(DGND)
V : 1V/div H : 2ms/div

ch4 K2003(SOFT-D) - K2014(DGND)
V : 1V/div H : 2ms/div

ch5 K2010(YPR-U) - K2014(DGND)
V : 1V/div H : 2ms/div

(50FHD Y DRIVE Ass'y)



④ ch1 R2401(LE) - K2014(DGND)
V : 1V/div H : 2ms/div

ch2 R2404(CLK2) - K2014(DGND)
V : 1V/div H : 2ms/div

ch3 R2406(SI_L) - K2014(DGND)
V : 1V/div H : 2ms/div

ch4 R2409(CLR) - K2014(DGND)
V : 1V/div H : 2ms/div

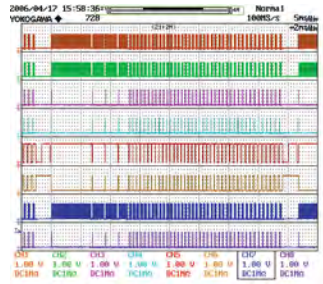
ch5 R2411(OC2_U) - K2014(DGND)
V : 1V/div H : 2ms/div

ch6 R2415(OC1) - K2014(DGND)
V : 1V/div H : 2ms/div

ch7 R2418(CLK1) - K2014(DGND)
H : 2ms/div

ch8 R2420(SI_H) - K2014(DGND)
H : 2ms/div

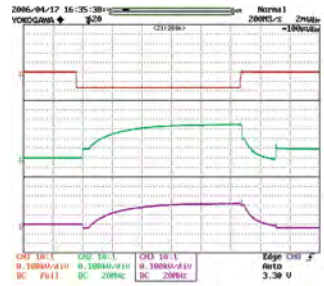
(50FHD Y DRIVE Ass'y)



⑤ ch1 R1222(XPSUS) - K1201(SUSGND)
V : 100V/div H : 100us/div
(50FHD X DRIVE Ass'y)

ch2 K2818(ScanOUT) - K2301(SUSGND)
V : 100V/div H : 100us/div
(50FHD SCAN B Ass'y HIGHSIDE)

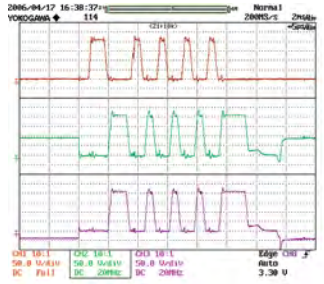
ch3 F2301(YPSUS) - KN2206(SUSGND)
V : 100V/div H : 100us/div
(Y DRIVE Ass'y)



⑥ ch1 R1222(XPSUS) - K1202(SUSGND)
V : 50V/div H : 5us/div
(50FHD X DRIVE Ass'y)

ch2 K2818(ScanOUT) - K2301(SUSGND)
V : 50V/div H : 5us/div
(50FHD SCAN A Ass'y LOWSIDE)

ch3 F2301(YPSUS) - K2301(SUSGND)
V : 50V/div H : 5us/div
(50FHD Y DRIVE Ass'y)



⑦ ch1 F2301(YPSUS) - K2301(SUSGND)
V : 50V/div H : 500ns/div

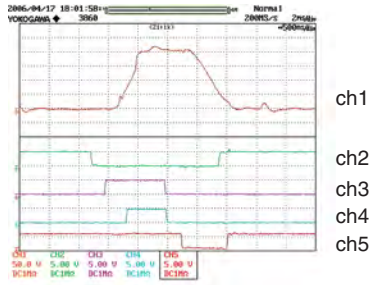
ch2 K2002(YSUS-G) - K2014(DGND)
V : 5V/div H : 500ns/div

ch3 K2013(YSUS-U) - K2014(DGND)
V : 5V/div H : 500ns/div

ch4 K2011(YSUS-B) - K2014(DGND)
V : 5V/div H : 500ns/div

ch5 K2012(YSUS-D) - K2014(DGND)
V : 5V/div H : 500ns/div

(50FHD Y DRIVE Ass'y)

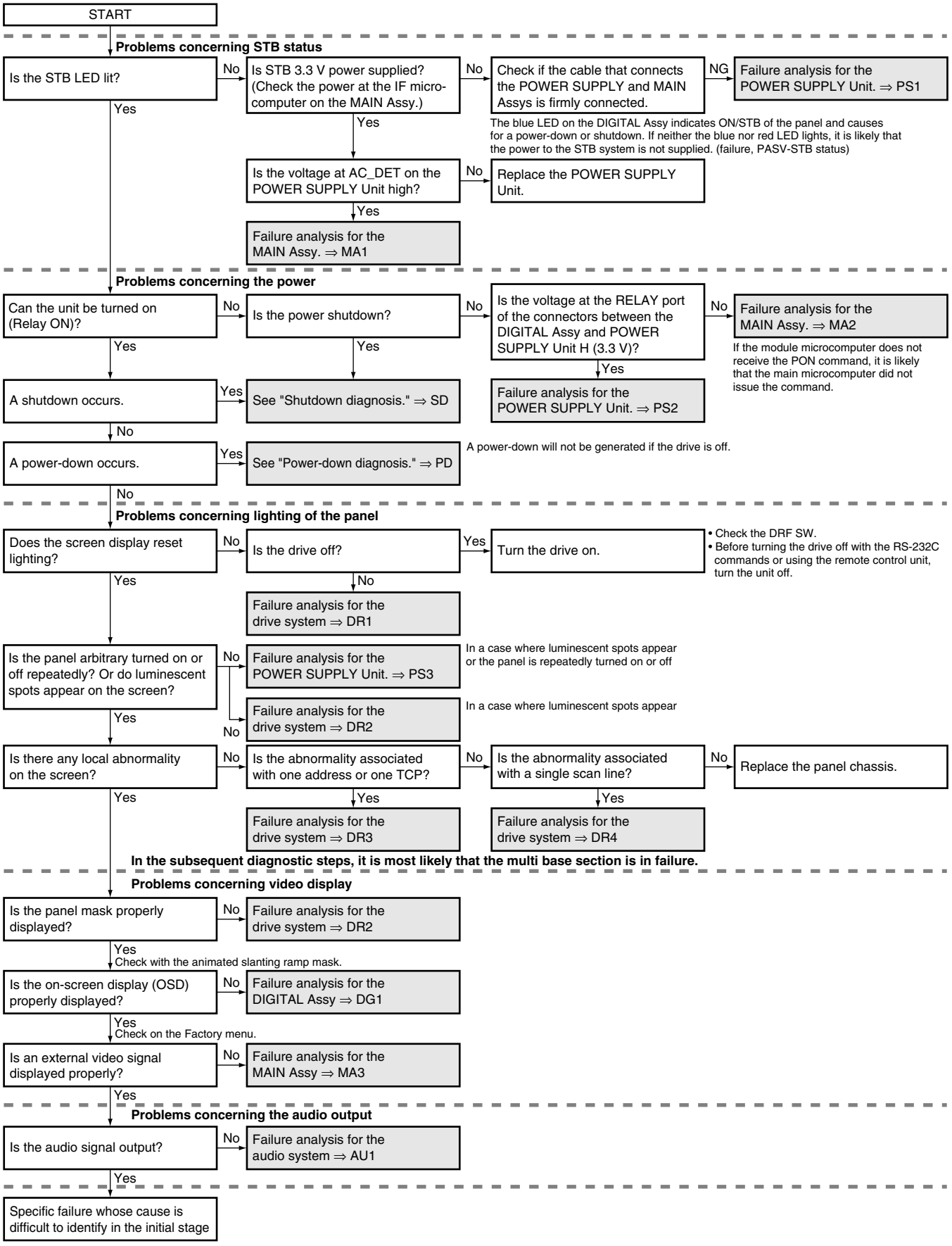


5. DIAGNOSIS INFORMATION

5.1 THE FLOW OF DIAGNOSIS

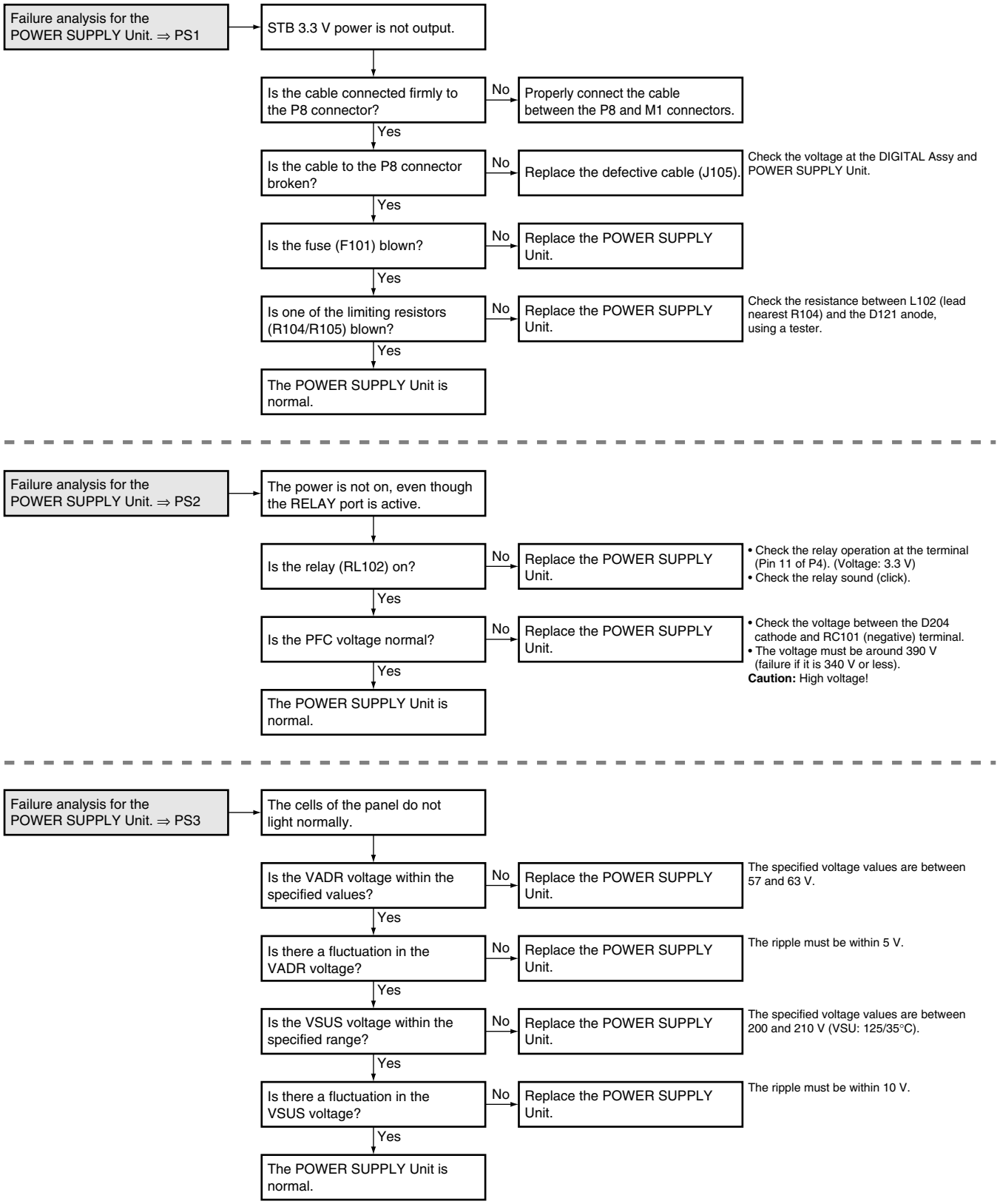
5.1.1 FLOWCHART OF FAILURE ANALYSIS FOR THE WHOLE UNIT

Flowchart of Failure Analysis for The Whole Unit


START
Problems concerning STB status
Is the STB LED lit?
No
Is STB 3.3 V power supplied? (Check the power at the IF micro-computer on the MAIN Assy.)
No
Check if the cable that connects the POWER SUPPLY and MAIN Assys is firmly connected.
NG
Failure analysis for the POWER SUPPLY Unit. ⇒ PS1
Yes
Yes
The blue LED on the DIGITAL Assy indicates ON/STB of the panel and causes for a power-down or shutdown. If neither the blue nor red LED lights, it is likely that the power to the STB system is not supplied. (failure, PASV-STB status)
Is the voltage at AC_DET on the POWER SUPPLY Unit high?
No
Replace the POWER SUPPLY Unit.
Yes
Failure analysis for the MAIN Assy. ⇒ MA1
Problems concerning the power
Can the unit be turned on (Relay ON)?
No
Is the power shutdown?
No
Is the voltage at the RELAY port of the connectors between the DIGITAL Assy and POWER SUPPLY Unit H (3.3 V)?
No
Failure analysis for the MAIN Assy. ⇒ MA2
If the module microcomputer does not receive the PON command, it is likely that the main microcomputer did not issue the command.
Yes
Yes
Yes
Failure analysis for the POWER SUPPLY Unit. ⇒ PS2
A shutdown occurs.
Yes
See "Shutdown diagnosis." ⇒ SD
No
A power-down occurs.
Yes
See "Power-down diagnosis." ⇒ PD
A power-down will not be generated if the drive is off.
No
Problems concerning lighting of the panel
Does the screen display reset lighting?
No
Is the drive off?
Yes
Turn the drive on.
• Check the DRF SW.
• Before turning the drive off with the RS-232C commands or using the remote control unit, turn the unit off.
Yes
No
Failure analysis for the drive system ⇒ DR1
Is the panel arbitrary turned on or off repeatedly? Or do luminescent spots appear on the screen?
No
Failure analysis for the POWER SUPPLY Unit. ⇒ PS3
In a case where luminescent spots appear or the panel is repeatedly turned on or off
Yes
No
Failure analysis for the drive system ⇒ DR2
In a case where luminescent spots appear
Is there any local abnormality on the screen?
No
Is the abnormality associated with one address or one TCP?
No
Is the abnormality associated with a single scan line?
No
Replace the panel chassis.
Yes
Yes
Yes
Failure analysis for the drive system ⇒ DR3
Failure analysis for the drive system ⇒ DR4
In the subsequent diagnostic steps, it is most likely that the multi base section is in failure.
Problems concerning video display
Is the panel mask properly displayed?
No
Failure analysis for the drive system ⇒ DR2
Yes
Check with the animated slanting ramp mask.
Is the on-screen display (OSD) properly displayed?
No
Failure analysis for the DIGITAL Assy ⇒ DG1
Yes
Check on the Factory menu.
Is an external video signal displayed properly?
No
Failure analysis for the MAIN Assy ⇒ MA3
Yes
Problems concerning the audio output
Is the audio signal output?
No
Failure analysis for the audio system ⇒ AU1
Yes
Specific failure whose cause is difficult to identify in the initial stage

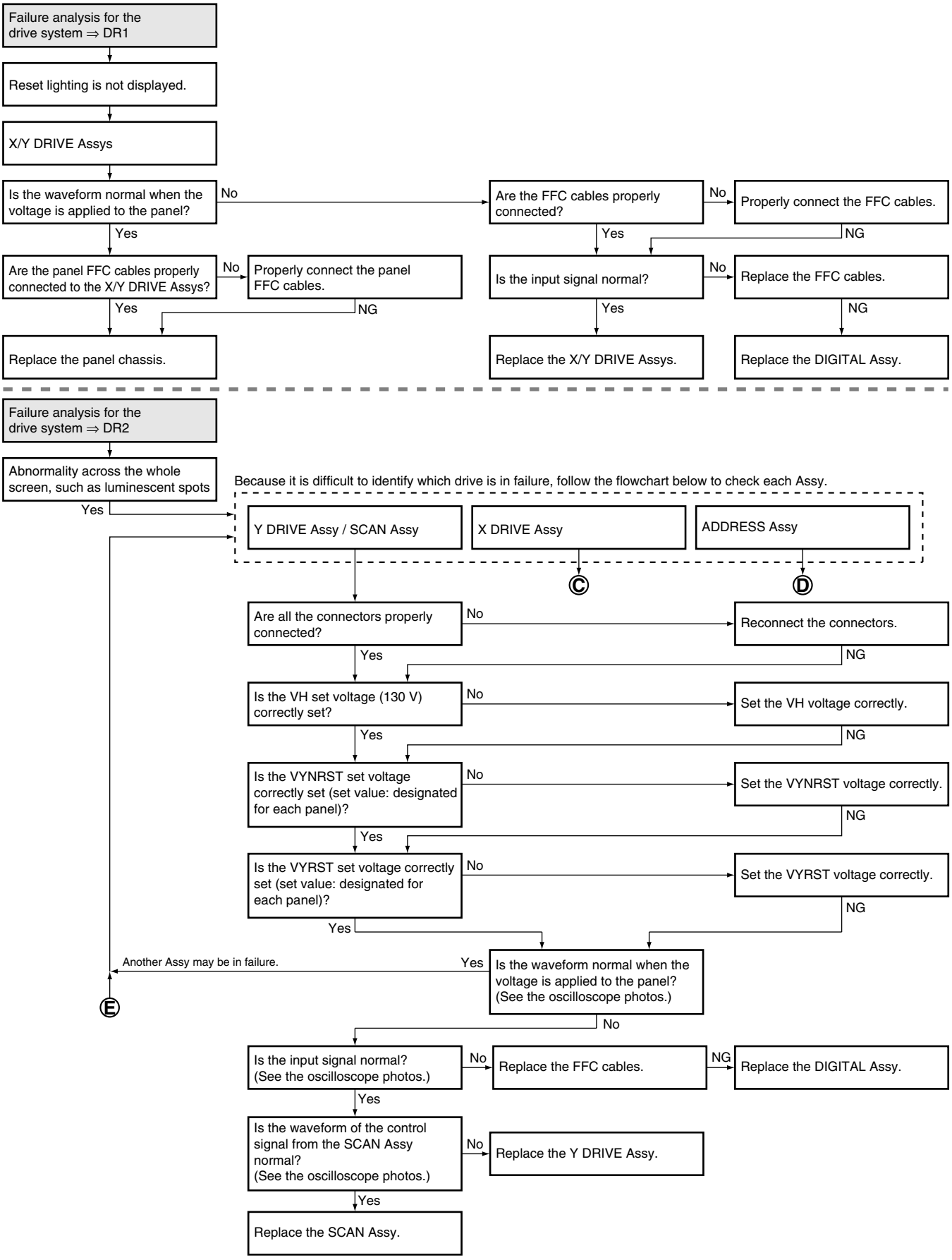
5.1.2 FLOWCHART OF FAILURE ANALYSIS FOR THE POWER SUPPLY UNIT

Flowchart of Failure Analysis for The POWER SUPPLY Unit

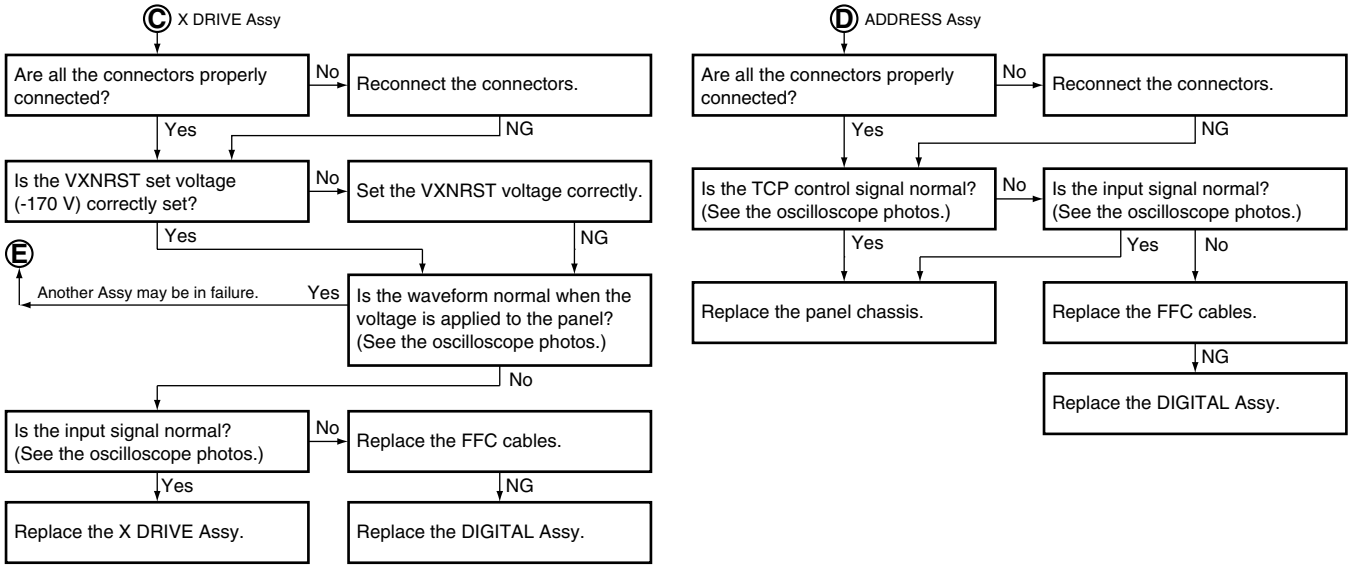

Failure analysis for the POWER SUPPLY Unit. ⇒ PS1
STB 3.3 V power is not output.
Is the cable connected firmly to the P8 connector?
No
Properly connect the cable between the P8 and M1 connectors.
Yes
Is the cable to the P8 connector broken?
No
Replace the defective cable (J105).
Check the voltage at the DIGITAL Assy and POWER SUPPLY Unit.
Yes
Is the fuse (F101) blown?
No
Replace the POWER SUPPLY Unit.
Yes
Is one of the limiting resistors (R104/R105) blown?
No
Replace the POWER SUPPLY Unit.
Check the resistance between L102 (lead nearest R104) and the D121 anode, using a tester.
Yes
The POWER SUPPLY Unit is normal.
Failure analysis for the POWER SUPPLY Unit. ⇒ PS2
The power is not on, even though the RELAY port is active.
Is the relay (RL102) on?
No
Replace the POWER SUPPLY Unit.
• Check the relay operation at the terminal (Pin 11 of P4). (Voltage: 3.3 V)
• Check the relay sound (click).
Yes
Is the PFC voltage normal?
No
Replace the POWER SUPPLY Unit.
• Check the voltage between the D204 cathode and RC101 (negative) terminal.
• The voltage must be around 390 V (failure if it is 340 V or less).
Caution: High voltage!
Yes
The POWER SUPPLY Unit is normal.
Failure analysis for the POWER SUPPLY Unit. ⇒ PS3
The cells of the panel do not light normally.
Is the VADR voltage within the specified values?
No
Replace the POWER SUPPLY Unit.
The specified voltage values are between 57 and 63 V.
Yes
Is there a fluctuation in the VADR voltage?
No
Replace the POWER SUPPLY Unit.
The ripple must be within 5 V.
Yes
Is the VSUS voltage within the specified range?
No
Replace the POWER SUPPLY Unit.
The specified voltage values are between 200 and 210 V (VSU: 125/35°C).
Yes
Is there a fluctuation in the VSUS voltage?
No
Replace the POWER SUPPLY Unit.
The ripple must be within 10 V.
Yes
The POWER SUPPLY Unit is normal.

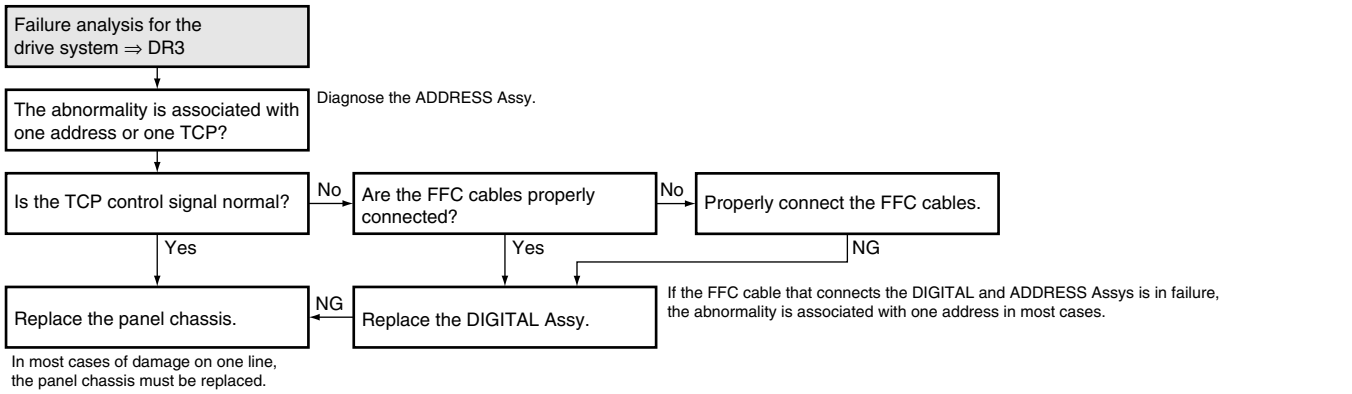
5.1.3 FLOWCHART OF FAILURE ANALYSIS FOR THE DRIVE ASSY

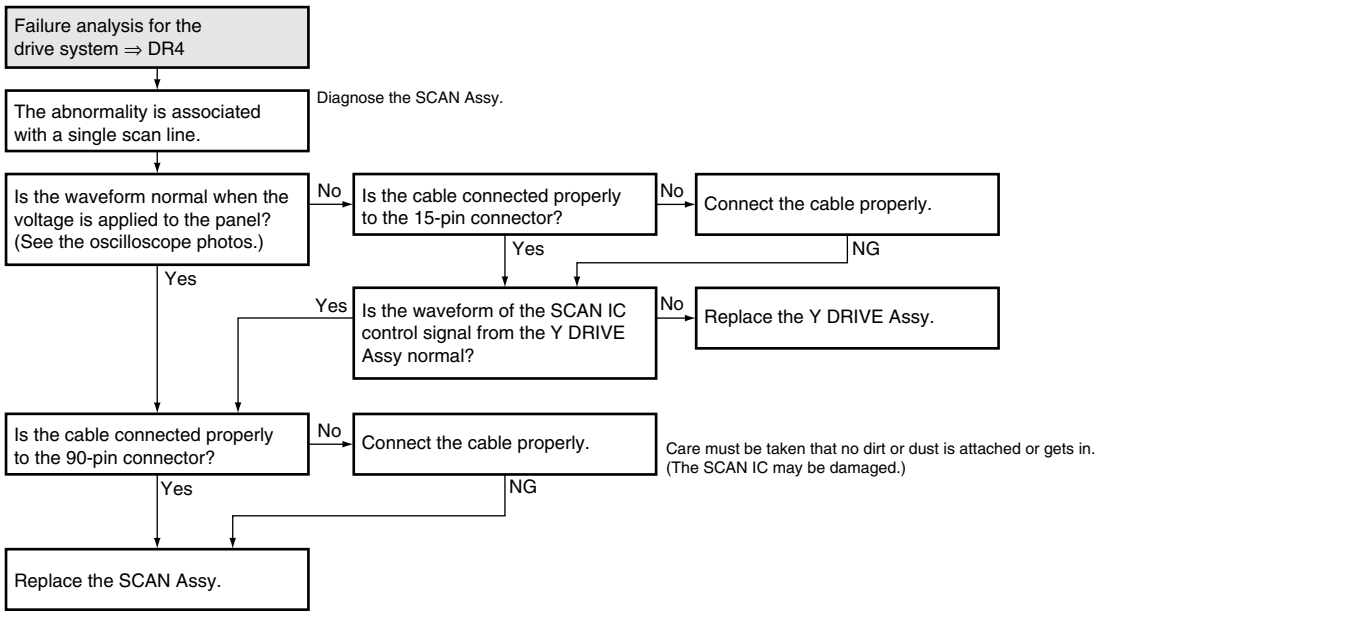
Flowchart of Failure Analysis for The Drive Assy (1)


Failure analysis for the drive system ⇒ DR1
Reset lighting is not displayed.
X/Y DRIVE Assys
Is the waveform normal when the voltage is applied to the panel?
No
Are the FFC cables properly connected?
No
Properly connect the FFC cables.
Yes
NG
Are the panel FFC cables properly connected to the X/Y DRIVE Assys?
No
Properly connect the panel FFC cables.
Is the input signal normal?
No
Replace the FFC cables.
Yes
NG
Yes
NG
Replace the panel chassis.
Replace the X/Y DRIVE Assys.
Replace the DIGITAL Assy.
Failure analysis for the drive system ⇒ DR2
Abnormality across the whole screen, such as luminescent spots
Because it is difficult to identify which drive is in failure, follow the flowchart below to check each Assy.
Yes
Y DRIVE Assy / SCAN Assy
X DRIVE Assy
ADDRESS Assy
Ⓒ
Ⓓ
Are all the connectors properly connected?
No
Reconnect the connectors.
Yes
NG
Is the VH set voltage (130 V) correctly set?
No
Set the VH voltage correctly.
Yes
NG
Is the VYNRST set voltage correctly set (set value: designated for each panel)?
No
Set the VYNRST voltage correctly.
Yes
NG
Is the VYRST set voltage correctly set (set value: designated for each panel)?
No
Set the VYRST voltage correctly.
Yes
NG
Another Assy may be in failure.
Yes
Is the waveform normal when the voltage is applied to the panel? (See the oscilloscope photos.)
Ⓔ
No
Is the input signal normal? (See the oscilloscope photos.)
No
Replace the FFC cables.
NG
Replace the DIGITAL Assy.
Yes
Is the waveform of the control signal from the SCAN Assy normal? (See the oscilloscope photos.)
No
Replace the Y DRIVE Assy.
Yes
Replace the SCAN Assy.

Flowchart of Failure Analysis for The Drive Assy (2)

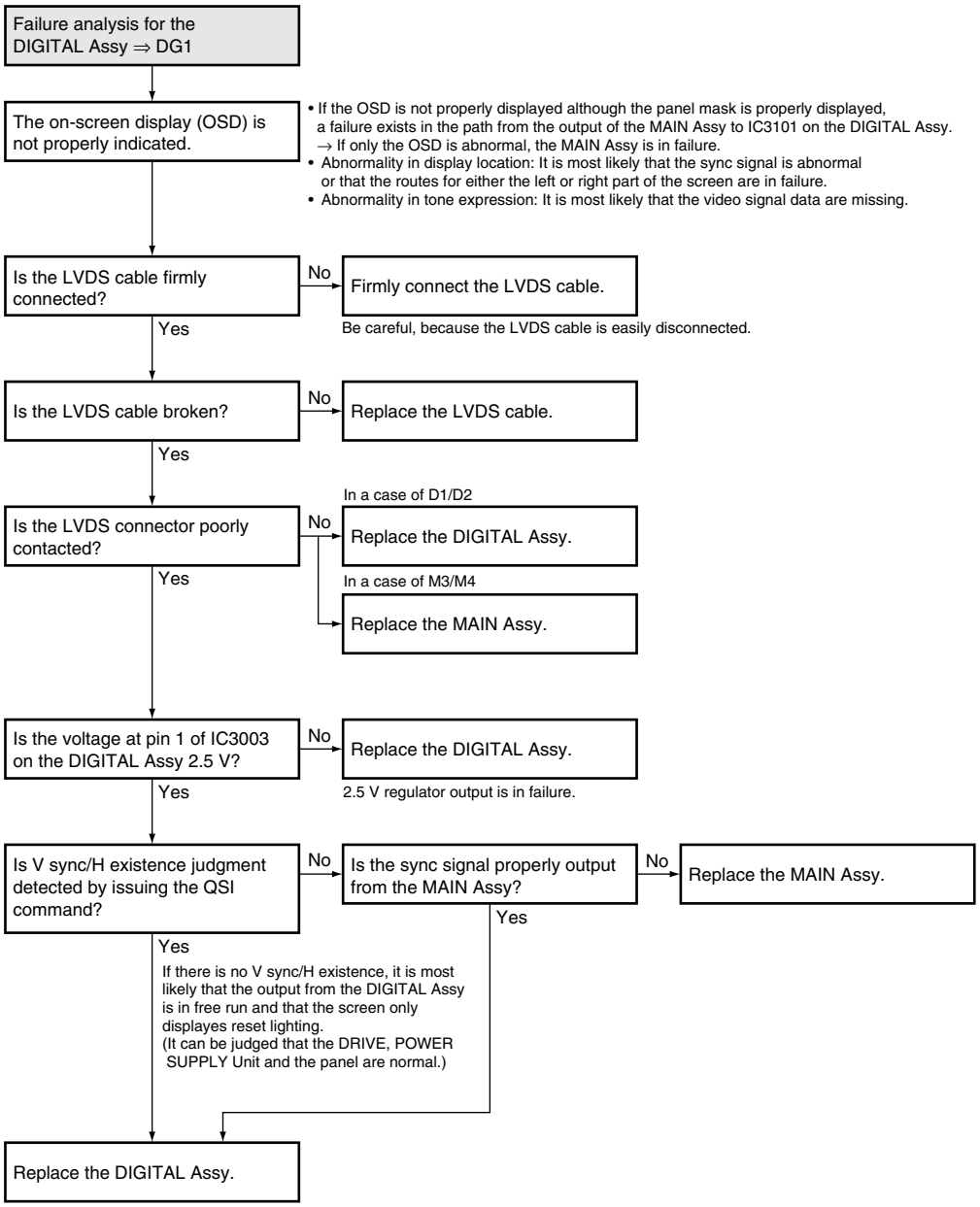



Failure analysis for the drive system ⇒ DR3
The abnormality is associated with one address or one TCP?
Diagnose the ADDRESS Assy.
Is the TCP control signal normal?
No
Are the FFC cables properly connected?
No
Properly connect the FFC cables.
Yes
Yes
NG
Replace the panel chassis.
NG
Replace the DIGITAL Assy.
If the FFC cable that connects the DIGITAL and ADDRESS Assys is in failure, the abnormality is associated with one address in most cases.
In most cases of damage on one line, the panel chassis must be replaced.


Failure analysis for the drive system ⇒ DR4
The abnormality is associated with a single scan line.
Diagnose the SCAN Assy.
Is the waveform normal when the voltage is applied to the panel? (See the oscilloscope photos.)
No
Is the cable connected properly to the 15-pin connector?
No
Connect the cable properly.
Yes
NG
Yes
Yes
Is the waveform of the SCAN IC control signal from the Y DRIVE Assy normal?
No
Replace the Y DRIVE Assy.
Is the cable connected properly to the 90-pin connector?
No
Connect the cable properly.
Care must be taken that no dirt or dust is attached or gets in. (The SCAN IC may be damaged.)
Yes
NG
Replace the SCAN Assy.

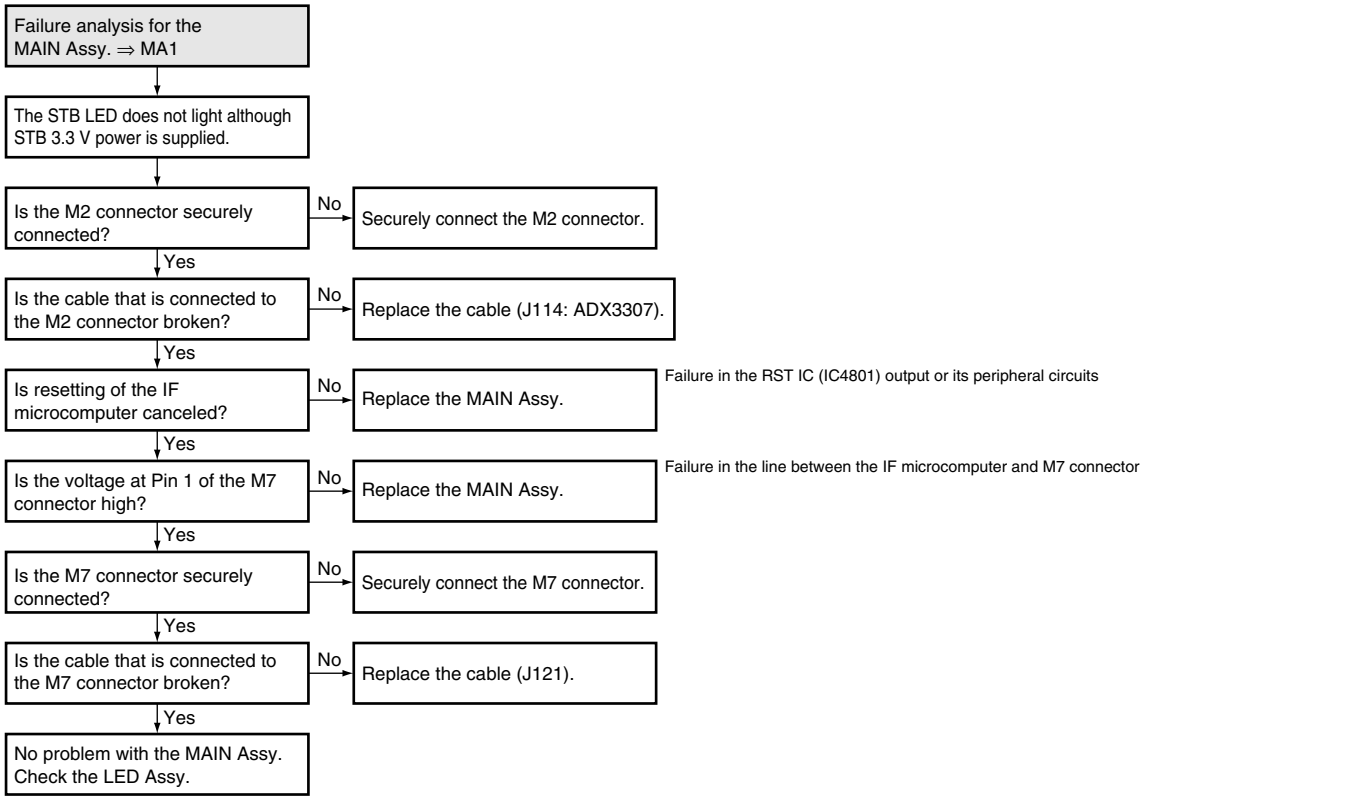
5.1.4 FLOWCHART OF FAILURE ANALYSIS FOR THE DIGITAL ASSY

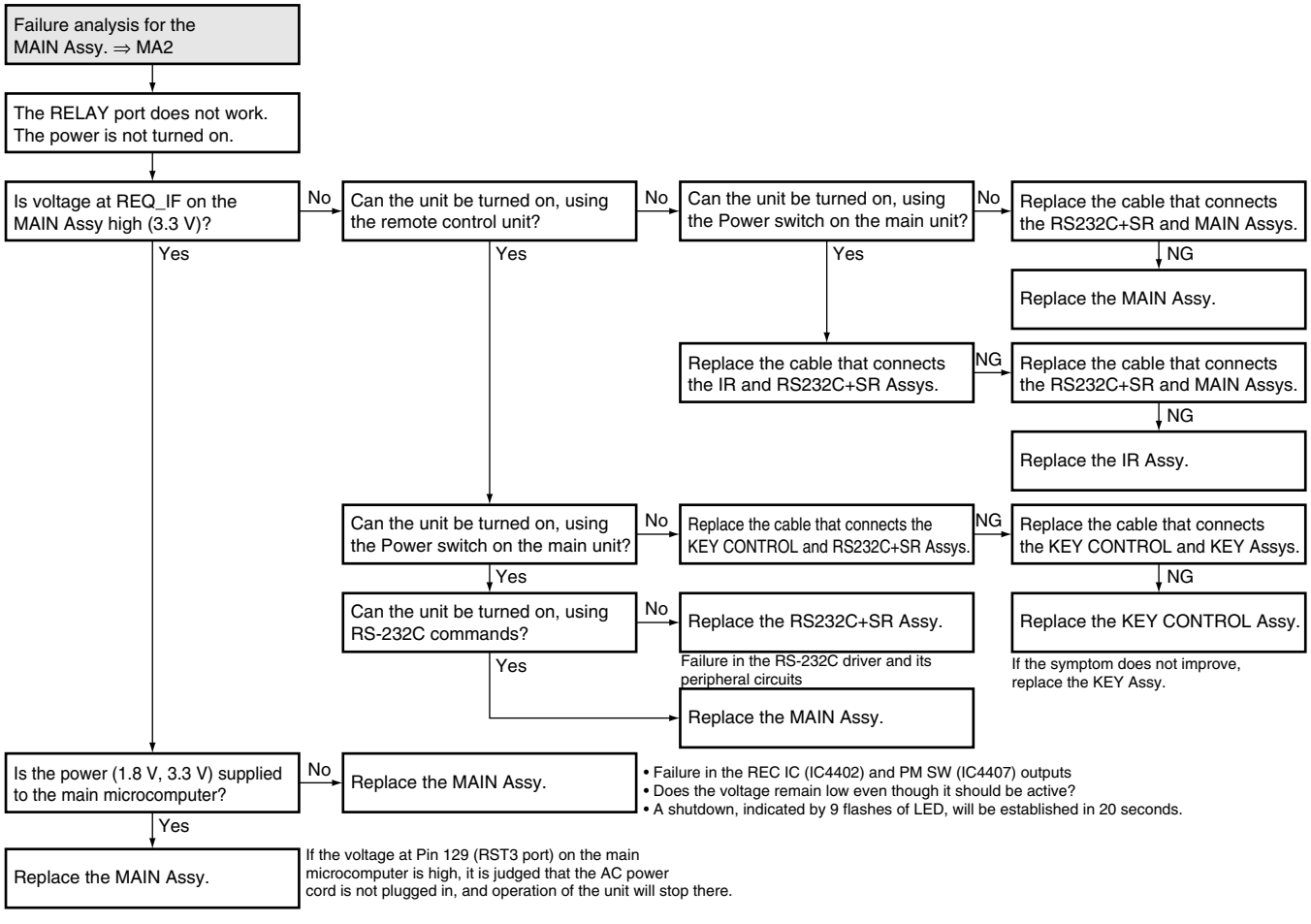
Flowchart of Failure Analysis for The DIGITAL Assy


Failure analysis for the DIGITAL Assy ⇒ DG1
The on-screen display (OSD) is not properly indicated.
• If the OSD is not properly displayed although the panel mask is properly displayed, a failure exists in the path from the output of the MAIN Assy to IC3101 on the DIGITAL Assy.
→ If only the OSD is abnormal, the MAIN Assy is in failure.
• Abnormality in display location: It is most likely that the sync signal is abnormal or that the routes for either the left or right part of the screen are in failure.
• Abnormality in tone expression: It is most likely that the video signal data are missing.
Is the LVDS cable firmly connected?
No
Firmly connect the LVDS cable.
Be careful, because the LVDS cable is easily disconnected.
Yes
Is the LVDS cable broken?
No
Replace the LVDS cable.
Yes
In a case of D1/D2
Is the LVDS connector poorly contacted?
No
Replace the DIGITAL Assy.
In a case of M3/M4
Replace the MAIN Assy.
Yes
Is the voltage at pin 1 of IC3003 on the DIGITAL Assy 2.5 V?
No
Replace the DIGITAL Assy.
2.5 V regulator output is in failure.
Yes
Is V sync/H existence judgment detected by issuing the QSI command?
No
Is the sync signal properly output from the MAIN Assy?
No
Replace the MAIN Assy.
Yes
Yes
If there is no V sync/H existence, it is most likely that the output from the DIGITAL Assy is in free run and that the screen only displayes reset lighting.
(It can be judged that the DRIVE, POWER SUPPLY Unit and the panel are normal.)
Replace the DIGITAL Assy.

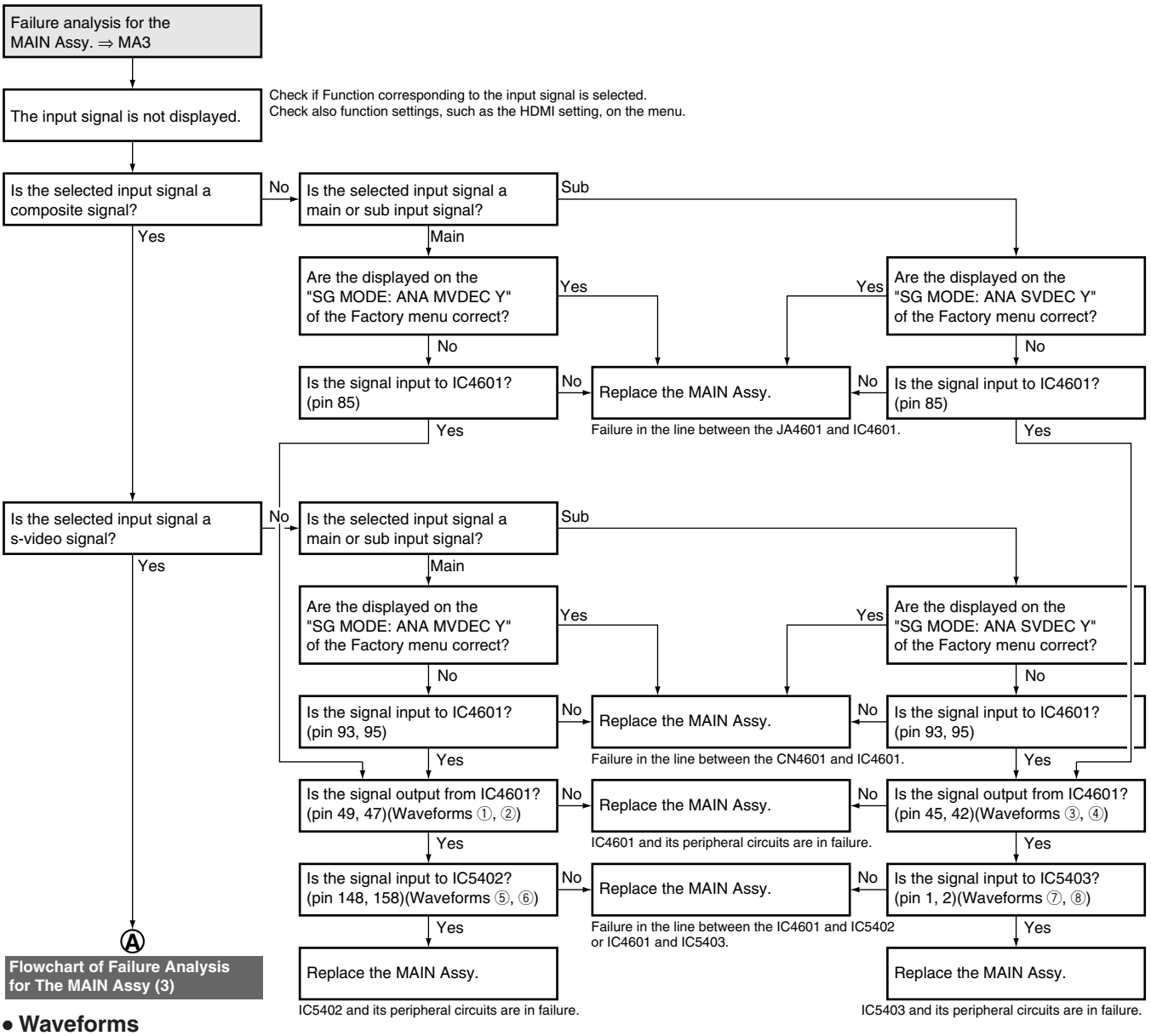
5.1.5 FLOWCHART OF FAILURE ANALYSIS FOR THE MAIN ASSY

Flowchart of Failure Analysis for The MAIN Assy (1)


Failure analysis for the MAIN Assy. ⇒ MA1
The STB LED does not light although STB 3.3 V power is supplied.
Is the M2 connector securely connected?
No
Securely connect the M2 connector.
Yes
Is the cable that is connected to the M2 connector broken?
No
Replace the cable (J114: ADX3307).
Yes
Is resetting of the IF microcomputer canceled?
No
Replace the MAIN Assy.
Failure in the RST IC (IC4801) output or its peripheral circuits
Yes
Is the voltage at Pin 1 of the M7 connector high?
No
Replace the MAIN Assy.
Failure in the line between the IF microcomputer and M7 connector
Yes
Is the M7 connector securely connected?
No
Securely connect the M7 connector.
Yes
Is the cable that is connected to the M7 connector broken?
No
Replace the cable (J121).
Yes
No problem with the MAIN Assy. Check the LED Assy.

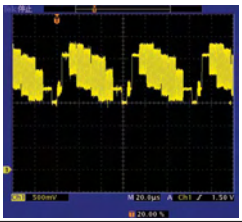

Failure analysis for the MAIN Assy. ⇒ MA2
The RELAY port does not work. The power is not turned on.
Is voltage at REQ_IF on the MAIN Assy high (3.3 V)?
No
Can the unit be turned on, using the remote control unit?
No
Can the unit be turned on, using the Power switch on the main unit?
No
Replace the cable that connects the RS232C+SR and MAIN Assys.
NG
Replace the MAIN Assy.
Yes
Yes
Yes
Replace the cable that connects the IR and RS232C+SR Assys.
NG
Replace the cable that connects the RS232C+SR and MAIN Assys.
NG
Replace the IR Assy.
Can the unit be turned on, using the Power switch on the main unit?
No
Replace the cable that connects the KEY CONTROL and RS232C+SR Assys.
NG
Replace the cable that connects the KEY CONTROL and KEY Assys.
NG
Yes
Can the unit be turned on, using RS-232C commands?
No
Replace the RS232C+SR Assy.
Failure in the RS-232C driver and its peripheral circuits
Replace the KEY CONTROL Assy.
If the symptom does not improve, replace the KEY Assy.
Yes
Replace the MAIN Assy.
Is the power (1.8 V, 3.3 V) supplied to the main microcomputer?
No
Replace the MAIN Assy.
• Failure in the REC IC (IC4402) and PM SW (IC4407) outputs
• Does the voltage remain low even though it should be active?
• A shutdown, indicated by 9 flashes of LED, will be established in 20 seconds.
Yes
Replace the MAIN Assy.
If the voltage at Pin 129 (RST3 port) on the main microcomputer is high, it is judged that the AC power cord is not plugged in, and operation of the unit will stop there.

Flowchart of Failure Analysis for The MAIN Assy (2)


Failure analysis for the MAIN Assy. ⇒ MA3
The input signal is not displayed.
Check if Function corresponding to the input signal is selected.
Check also function settings, such as the HDMI setting, on the menu.
Is the selected input signal a composite signal?
No
Yes
Is the selected input signal a main or sub input signal?
Sub
Main
Are the displayed on the "SG MODE: ANA MVDEC Y" of the Factory menu correct?
Yes
No
Are the displayed on the "SG MODE: ANA SVDEC Y" of the Factory menu correct?
Yes
No
Is the signal input to IC4601? (pin 85)
No
Yes
Replace the MAIN Assy.
No
Failure in the line between the JA4601 and IC4601.
Is the signal input to IC4601? (pin 85)
Yes
Is the selected input signal a s-video signal?
No
Yes
Is the selected input signal a main or sub input signal?
Sub
Main
Are the displayed on the "SG MODE: ANA MVDEC Y" of the Factory menu correct?
Yes
No
Are the displayed on the "SG MODE: ANA SVDEC Y" of the Factory menu correct?
Yes
No
Is the signal input to IC4601? (pin 93, 95)
No
Yes
Replace the MAIN Assy.
No
Failure in the line between the CN4601 and IC4601.
Is the signal input to IC4601? (pin 93, 95)
Yes
Is the signal output from IC4601? (pin 49, 47)(Waveforms ①, ②)
No
Yes
Replace the MAIN Assy.
No
IC4601 and its peripheral circuits are in failure.
Is the signal output from IC4601? (pin 45, 42)(Waveforms ③, ④)
Yes
Is the signal input to IC5402? (pin 148, 158)(Waveforms ⑤, ⑥)
No
Yes
Replace the MAIN Assy.
No
Failure in the line between the IC4601 and IC5402 or IC4601 and IC5403.
Is the signal input to IC5403? (pin 1, 2)(Waveforms ⑦, ⑧)
Yes
Ⓐ
Flowchart of Failure Analysis for The MAIN Assy (3)
Replace the MAIN Assy.
IC5402 and its peripheral circuits are in failure.
Replace the MAIN Assy.
IC5403 and its peripheral circuits are in failure.

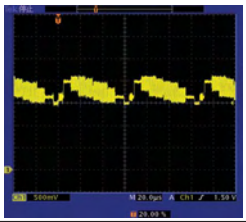
• Waveforms

① **IC4601 - pin 49**
V: 500 mV/div H: 20 µsec/div

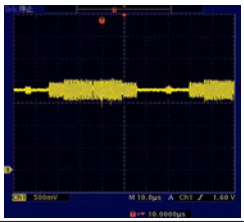


② **IC4601 - pin 47**
V: 500 mV/div H: 20 µsec/div

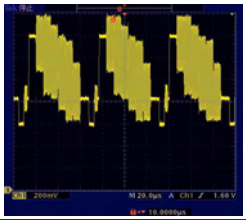
③ **IC4601 - pin 45**
V: 500 mV/div H: 20 µsec/div



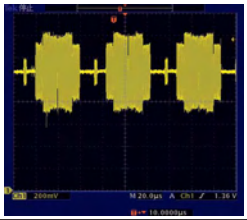
④ **IC4601 - pin 42**
V: 500 mV/div H: 10 µsec/div



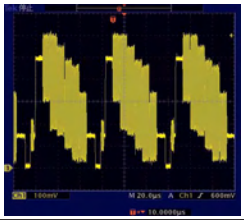
⑤ **IC5402 - pin 148**
V: 200 mV/div H: 20 µsec/div



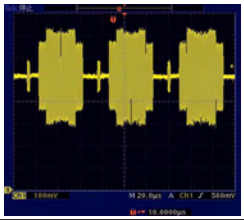
⑥ **IC5402 - pin 158**
V: 200 mV/div H: 20 µsec/div



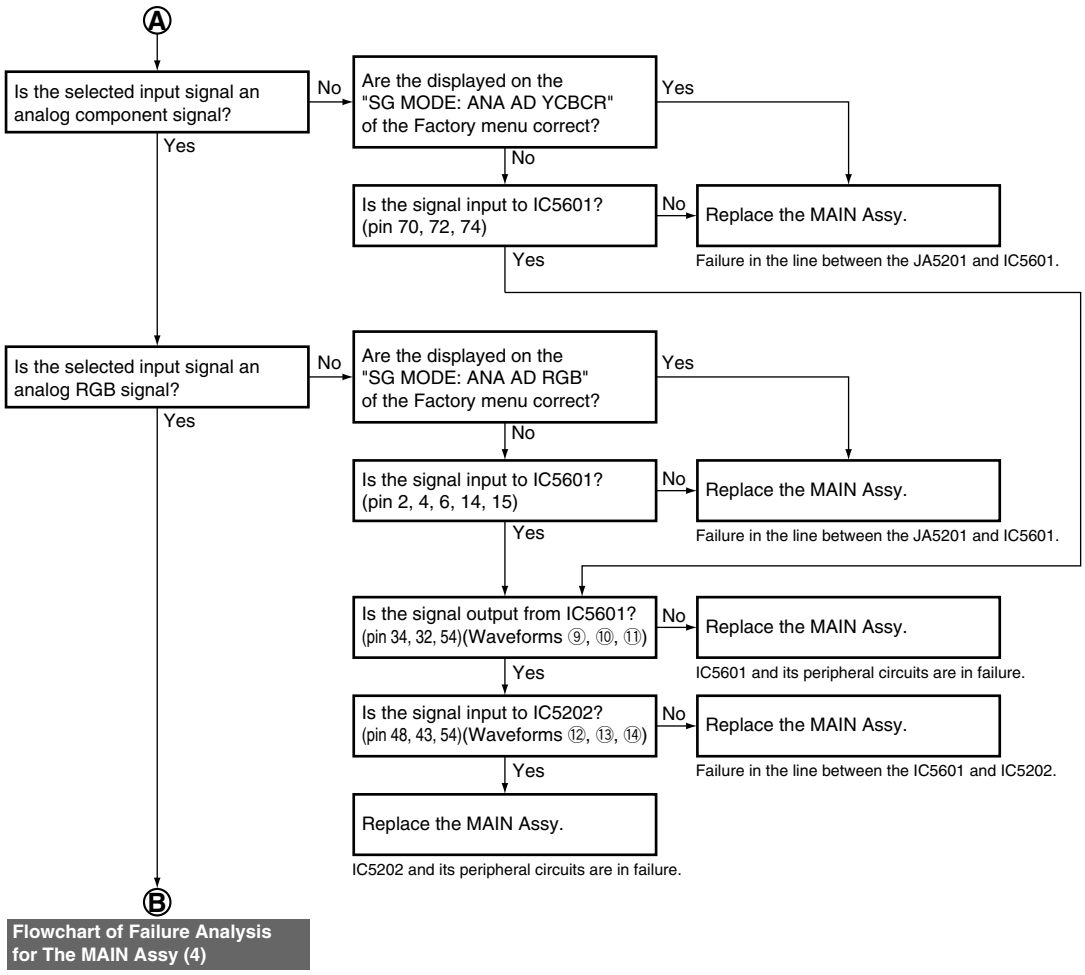
⑦ **IC5403 - pin 1**
V: 100 mV/div H: 20 µsec/div



⑧ **IC5403 - pin 2**
V: 100 mV/div H: 20 µsec/div



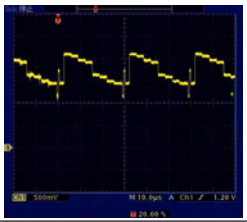
Flowchart of Failure Analysis for The MAIN Assy (3)


Ⓐ
Is the selected input signal an analog component signal?
No
Are the displayed on the "SG MODE: ANA AD YCBCR" of the Factory menu correct?
Yes
No
Is the signal input to IC5601? (pin 70, 72, 74)
No
Replace the MAIN Assy.
Failure in the line between the JA5201 and IC5601.
Yes
Yes
Is the selected input signal an analog RGB signal?
No
Are the displayed on the "SG MODE: ANA AD RGB" of the Factory menu correct?
Yes
No
Is the signal input to IC5601? (pin 2, 4, 6, 14, 15)
No
Replace the MAIN Assy.
Failure in the line between the JA5201 and IC5601.
Yes
Is the signal output from IC5601? (pin 34, 32, 54)(Waveforms ⑨, ⑩, ⑪)
No
Replace the MAIN Assy.
IC5601 and its peripheral circuits are in failure.
Yes
Is the signal input to IC5202? (pin 48, 43, 54)(Waveforms ⑫, ⑬, ⑭)
No
Replace the MAIN Assy.
Failure in the line between the IC5601 and IC5202.
Yes
Replace the MAIN Assy.
IC5202 and its peripheral circuits are in failure.
Ⓑ

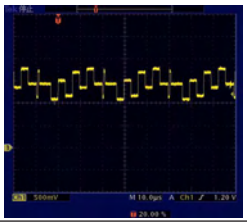
Flowchart of Failure Analysis for The MAIN Assy (4)

• Waveforms

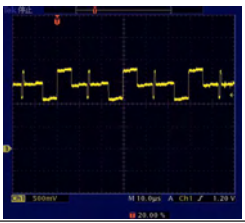
⑨ **IC5601 - pin 34**
V: 500 mV/div H: 10 µsec/div



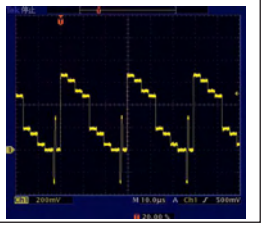
⑩ **IC5601 - pin 32**
V: 500 mV/div H: 10 µsec/div



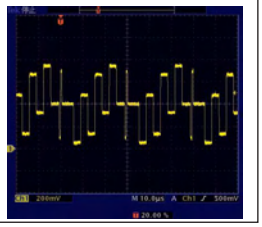
⑪ **IC5601 - pin 30**
V: 500 mV/div H: 10 µsec/div



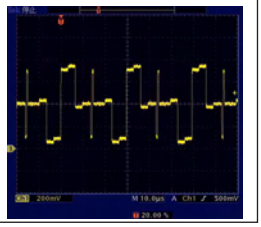
⑫ **IC5202 - pin 48**
V: 200 mV/div H: 10 µsec/div



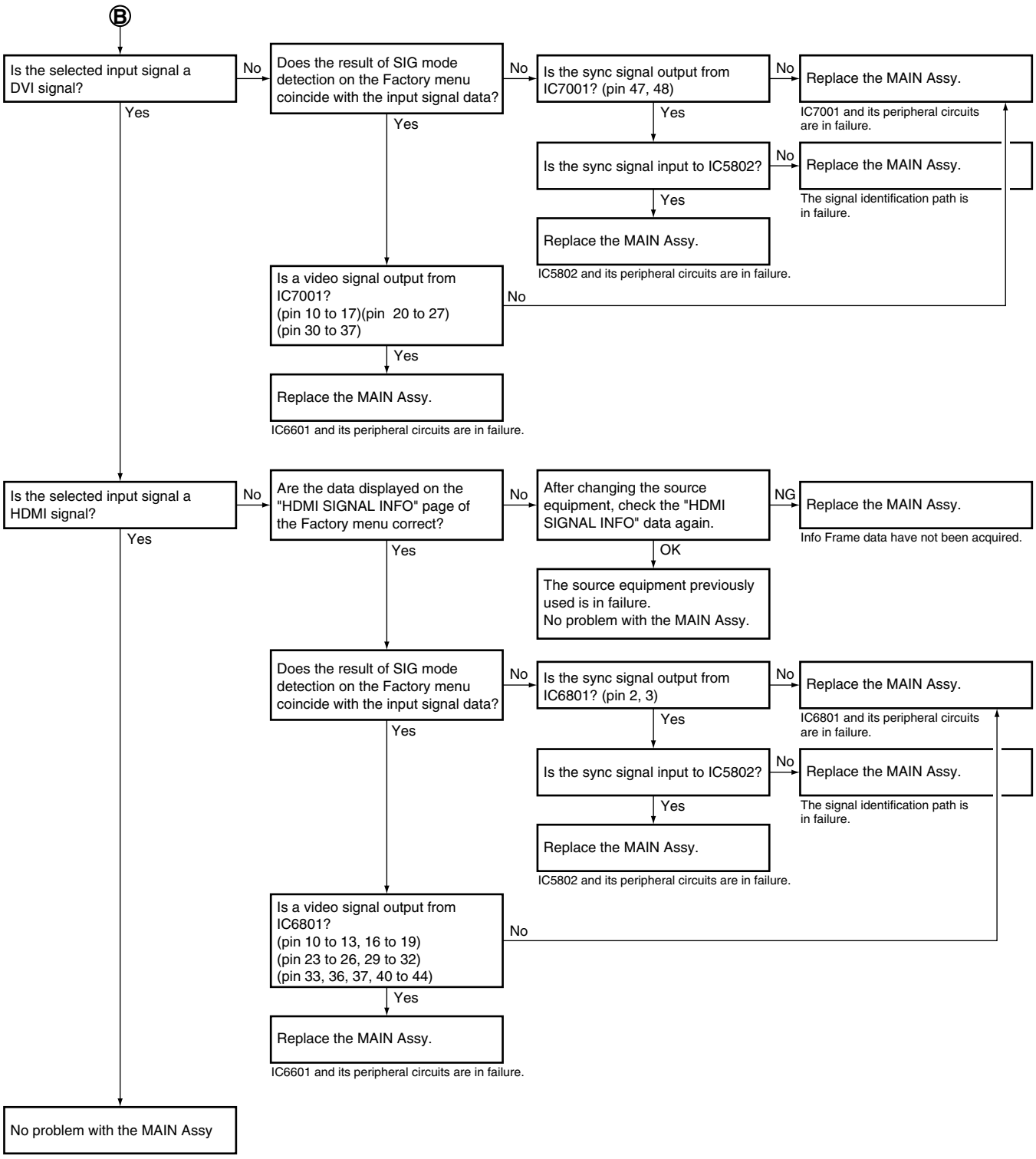
⑬ **IC5202 - pin 43**
V: 200 mV/div H: 10 µsec/div



⑭ **IC5202 - pin 54**
V: 100 mV/div H: 10 µsec/div



Flowchart of Failure Analysis for The MAIN Assy (4)


Ⓑ
Is the selected input signal a DVI signal?
No
Does the result of SIG mode detection on the Factory menu coincide with the input signal data?
No
Is the sync signal output from IC7001? (pin 47, 48)
No
Replace the MAIN Assy.
IC7001 and its peripheral circuits are in failure.
Yes
Yes
Yes
Is the sync signal input to IC5802?
No
Replace the MAIN Assy.
The signal identification path is in failure.
Yes
Replace the MAIN Assy.
IC5802 and its peripheral circuits are in failure.
Is a video signal output from IC7001? (pin 10 to 17)(pin 20 to 27) (pin 30 to 37)
No
Yes
Replace the MAIN Assy.
IC6601 and its peripheral circuits are in failure.
Is the selected input signal a HDMI signal?
No
Are the data displayed on the "HDMI SIGNAL INFO" page of the Factory menu correct?
No
After changing the source equipment, check the "HDMI SIGNAL INFO" data again.
NG
Replace the MAIN Assy.
Info Frame data have not been acquired.
Yes
Yes
OK
The source equipment previously used is in failure. No problem with the MAIN Assy.
Does the result of SIG mode detection on the Factory menu coincide with the input signal data?
No
Is the sync signal output from IC6801? (pin 2, 3)
No
Replace the MAIN Assy.
IC6801 and its peripheral circuits are in failure.
Yes
Yes
Is the sync signal input to IC5802?
No
Replace the MAIN Assy.
The signal identification path is in failure.
Yes
Replace the MAIN Assy.
IC5802 and its peripheral circuits are in failure.
Is a video signal output from IC6801? (pin 10 to 13, 16 to 19) (pin 23 to 26, 29 to 32) (pin 33, 36, 37, 40 to 44)
No
Yes
Replace the MAIN Assy.
IC6601 and its peripheral circuits are in failure.
No problem with the MAIN Assy

5.1.6 FLOWCHART OF FAILURE ANALYSIS FOR THE AUDIO SYSTEM

Flowchart of Failure Analysis for The Audio System

Failure analysis for the audio system ⇒ AU1

No sound from the speakers

- Check if sound is muted, the VOL control is set to the minimum value, or if the audio signal is not input.
- Check if the audio cables or speaker cables are broken or loosely connected.

Is the sound from all functions not output?

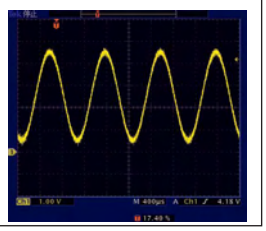
No / Yes

Is a signal detected at power amp output? (A4 pin 1, 2, 4, 5)
- Yes → Replace the SP LR1, 2 Assys or A4-SP1, 2 cable.
- No → Is a signal detected at POWER AMP Assy input? (A3 pin 9, 11, 13, 15)
  - Yes → Is the A_MUTE/A STBY_B signal of the POWER AMP Assy normal ?
    - No → Replace the cable between A2 and M8 (from MAIN Assy).
      - NG → Replace the MAIN Assy.
    - Yes → Replace the POWER AMP Assy.
  - No → Replace the cable between A3 and PR2 (from PRE AUDIO Assy).
    - NG → If no sound is output for any of the inputs, and if no signal is input to the Power Amplifier, the PRE AUDIO Assy is definitely in failure.

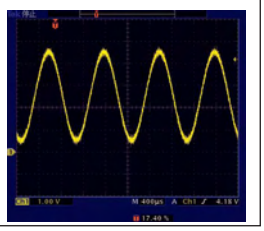
Is the signal output from IC8201? (pin 34, 33)(Waveforms ⑰, ⑱)
- No → IC8201 output is abnormal. → Replace the PRE AUDIO Assy.
- Yes → Is the signal input to IC8201? (pin 28, 29)(Waveforms ⑲, ⑳)
  - No → IC8207, IC8208, IC8209, and IC8210 is abnormal. (rip sync block)
    - Check the X8201 (18.43 MHz).
  - Yes → Is the signal output from IC8201? (pin 36, 35)(Waveforms ㉑, ㉒)
    - No → IC8201 output is abnormal.
    - Yes → Is the signal output from IC8203 and IC8204?
      - No → IC8202, IC8203 and IC8204 is abnormal. (pre audio output block)
      - Yes → Is the sound from INPUT 2, 3 (HDMI) functions not output?
        - No → Replace the PRE AUDIO Assy.
          - IC8201 (signal input block) is in failure.
        - Yes → Do use a DVI → HDMI conversion cable?
          - Yes → Connect an analog audio.
            - Perform audio setting with ANALOG or AUTO in the menu.
          - No → Is the audio setting on the menu correct?
            - No → Set the audio setting correctly.
              - Is the audio setting on the menu compatible with the input signal?
            - Yes → Is the audio signal displayed on the "HDMI SIGNAL INFO2" page of the Factory menu?
              - No → Check the audio setting of playback machinery.
              - Yes → Is the signal output from IC8205? (pin 7, 8)(Waveforms ⑮, ⑯)
                - Yes → Is the signal input to IC8201?
                  - Yes → Is HDMI_MUTE of PR 1 canceled?
                  - No → Replace the PRE AUDIO Assy.
                    - IC8206 (OP AMP) is in failure.
                - No → Is HDMI_MUTE of PR 1 canceled?
                  - No → If the voltage at the PR1 connector is low, sound is not muted.
                  - Yes → Is a signal detected at MCLK/SCK /WS/SDO of PR1?
                    - No → Properly connect the cable between the M9 and PR1 connectors.
                      - NG → Replace the MAIN Assy.
                      - Failure in the line between the IC6801 (HDMI Rx) and M9 connector on the MAIN Assy.
                    - Yes → Replace the PRE AUDIO Assy.
                      - I2S DAC is in failure.

• Waveforms

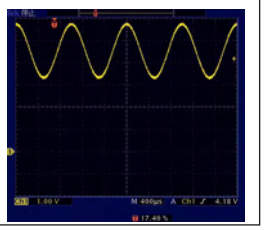
⑮ IC8205 - pin 7
V: 1 V/div H: 400 µsec/div



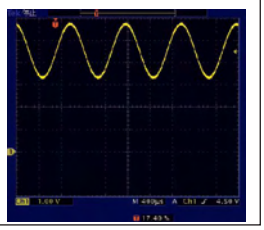
⑯ IC8205 - pin 8
V: 1 V/div H: 400 µsec/div



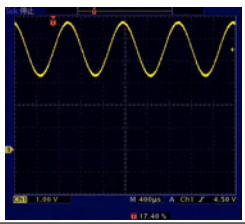
⑰ IC8201 - pin 34
V: 1 V/div H: 400 µsec/div



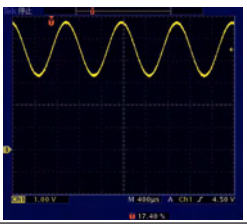
⑱ IC8201 - pin 33
V: 1 V/div H: 400 µsec/div



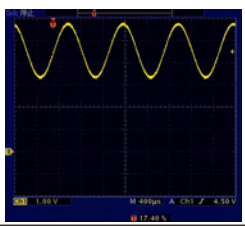
⑲ IC8201 - pin 29
V: 1 V/div H: 400 µsec/div



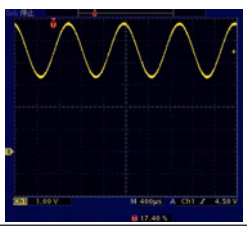
⑳ IC8201 - pin 28
V: 1 V/div H: 400 µsec/div



㉑ IC8201 - pin 36
V: 1 V/div H: 400 µsec/div



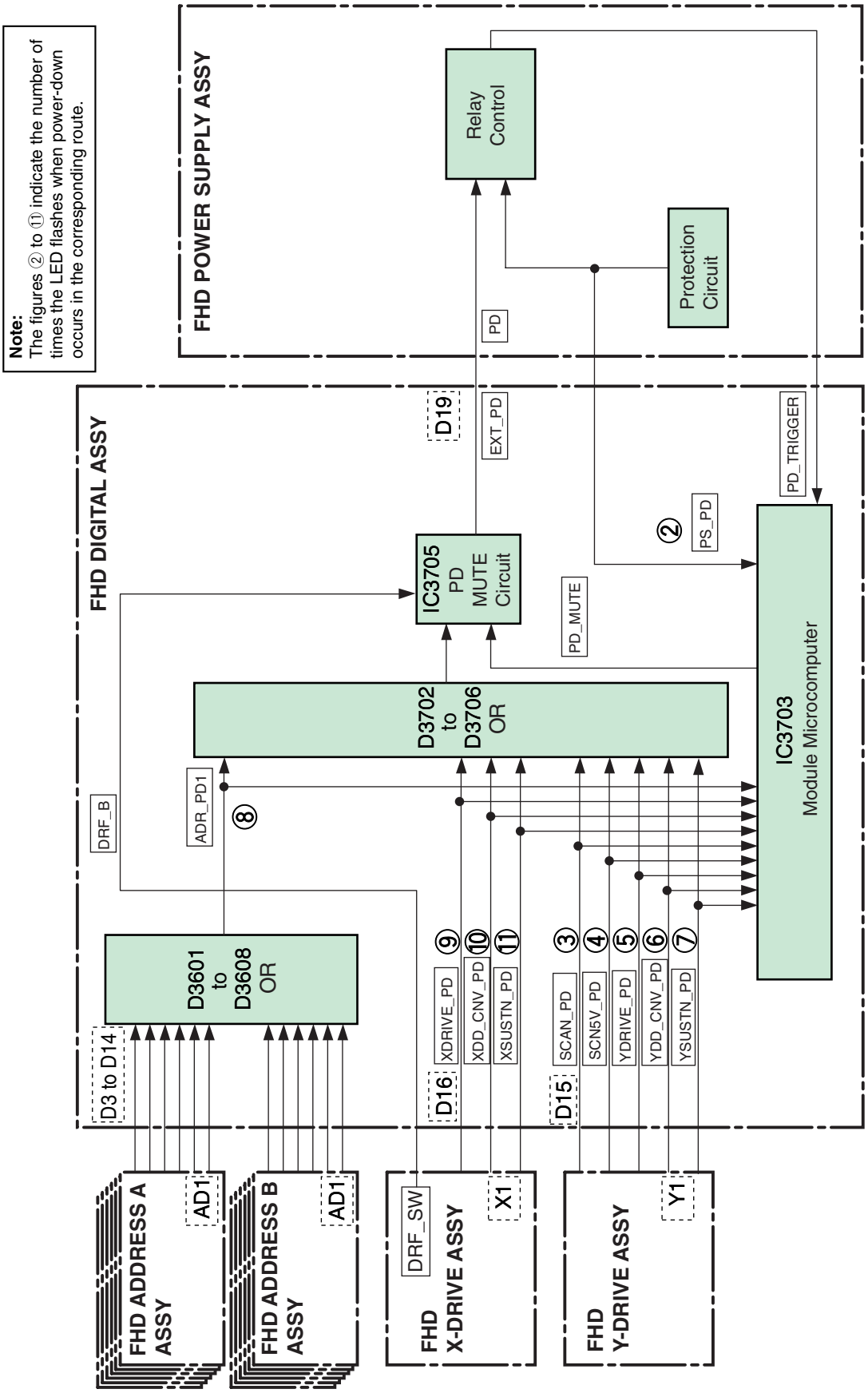
㉒ IC8201 - pin 35
V: 1 V/div H: 400 µsec/div



5.2 POWER DOWN

5.2.1 BLOCK DIAGRAM OF THE POWER-DOWN SIGANAL

■ Block diagram of the power-down siganal



5.2.2 POWER DOWN OF FAILURE ANALYSIS

PD (Power-down) diagnosis

■ Prediction of failure symptoms when a PD (power-down) is generated

LED Flashing Count	PD Circuit	Checkpoint	Main Cause
2	Power supply PD	POWER SUPPLY Unit	Failure in the POWER SUPPLY Unit
		X, Y DRIVE Assy	MSK_MOD is damaged (short-circuiting between VS and GND)
		Each Assy	16.5V/ 12V/ 6.5V/ 5.1V short-circuit within one of PCB.
3	SCAN PD	SCAN Assy	SCAN IC is damaged (short-circuiting between VH and GNDH)
		Y DRIVE Assy	Connectors disconnected between the POWER SUPPLY Unit and the Y DRIVE Assy
			Connectors disconnected between the DIGITAL and the Y DRIVE Assys
			Failure in the VH power
4	IC5V PD	SCAN Assy	SCAN IC is damaged (short-circuiting between IC5V and GNDH)
			Disconnection of the scan-bridge (15-pin) connector
		Y DRIVE Assy	Failure in the photo coupler
			Abnormality in the IC5V DC/DC converter
5	Y-DRIVE PD	Y DRIVE Assy	Abnormality in the 16.5 V power
6	Y DCDC PD	Y DRIVE Assy	MSK_MOD is damaged (short-circuiting of the mask switch)
			Abnormality in the VOFS DC/DC converter
			Abnormality in the VPRST DC/DC converter
			Abnormality in VC_15V DC/DC converter
7	Y SUS PD	Y DRIVE Assy	Abnormality in the DK module
			Abnormality in the control signal line
8	Address PD	ADDRESS Assy	Short-circuiting of Vadr
			TCP damaged
9	X-DRIVE PD	X DRIVE Assy	Connectors disconnected between the DIGITAL and the X DRIVE Assys
			Abnormality in the 16.5 V power
10	X DCDC PD	X DRIVE Assy	Abnormality in VC_15V power
			Abnormality in VXNRST power
11	X SUS PD	X DRIVE Assy	Abnormality in the DK module
			Abnormality in the control signal line
			Connectors disconnected between the POWER SUPPLY Unit and the X DRIVE Assy

• List of detection of disconnected connectors

Assy Name	Connector	Connection Assy	Number of LED flashes	Screen Display
X DRIVE	CN1001	FHD DIGITAL Assy	11 (X DRIVE)	
	CN1204	POWER SUPPLY Unit (ADR system)	–	White screen
	CN1206	POWER SUPPLY Unit (drive system)	12 (X-SUS)	
	CN1201, CN1202, CN1203, CN1205	ADDRESS Assy	8 (ADR)	
Y DRIVE	CN2001	FHD DIGITAL Assy	3 (SCAN)	
	CN2351	POWER SUPPLY Unit (drive system)	3 (SCAN)	
	CN2353	POWER SUPPLY Unit (ADR system)	–	White screen
	CN2354, CN2355, CN2356, CN2357	ADDRESS Assy	8 (ADR)	
	CN2401, CN2402	SCAN Assy	4 (SCN-5V)	
SCAN	CN2701, CN2801	Y DRIVE Assy	4 (SCN-5V)	
ADDRESS	CN1502, CN1702	FHD DIGITAL Assy	8 (ADRS)	
	CN1501, CN1701	X/Y DRIVE Assy	8 (ADRS)	

5.2.3 HOW TO IDENTIFY THE CAUSE OF A POWER-DOWN THAT IS INDICATED BY TWICE FLASHING OF THE RED LED

■ How to identify the cause of a power-down that is indicated by twice flashing of the red LED

A power-down caused by the power supply and one caused by a damaged drive part are both indicated by twice flashing of the LED. The cause of a power-down that is indicated by twice flashing of the red LED can be identified by performing the steps 1 and 2 below:
① Tester check with the power off
② Checks with the power on

① Tester check with the power off

- Tester check between Vsus and SUSGND
  Disconnect all cables from the X and Y DRIVE Assys and check if there is short-circuiting between Vsus and SUSGND in the X and Y DRIVE Assys.

- How to check if there is short-circuiting on the X DRIVE Assy:
  Check between VSUS and SUSGND on the MSK_MOD with the tester. If they are short-circuited, the MSK_Mod (SUS-B/G) is damaged.
  Check between the SUSOUT and PSUS connectors on the MSK_MOD with the tester. If they are short-circuited, the MSK_Mod (MSK) is damaged.
  Check other elements to see if they are short-circuited.

- How to check if there is short-circuiting on the Y DRIVE Assy:
  Check between VSUS and SUSGND in the MSK_MOD with the tester. If they are short-circuited, the MSK_Mod (SUS-B/G) is damaged.
  Check between the SUSOUT and MSK-S connectors on the MSK_MOD with the tester. If they are short-circuited, the MSK_Mod (MSK-R) is damaged.
  Check other elements to see if they are short-circuited.

- Check for short-circuiting in the power supply.

  Note that at the beginning of measuring with a tester, charging of an electrolytic capacitor may cause a phenomenon like short-circuiting. However, the resistance will soon rise if there is no short-circuiting.

② Check immediately after the unit is turned on before a power-down occurs.

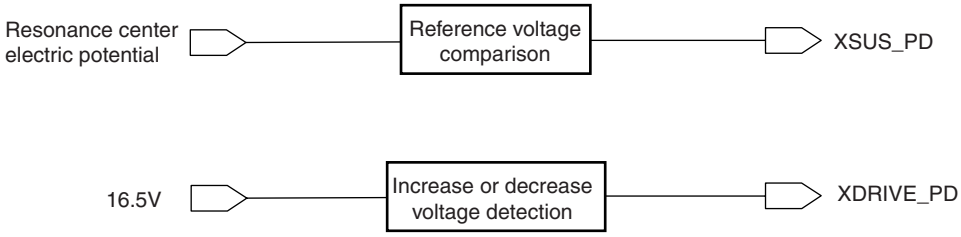
If the Vsus voltage does not increase, the power supply is in failure.

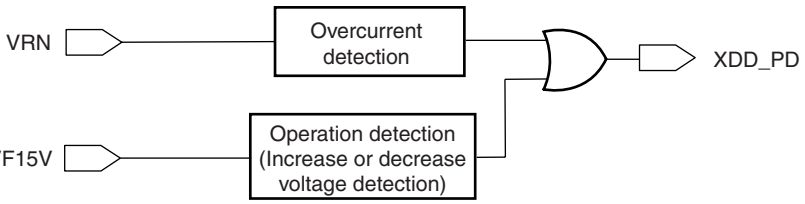
③ Check the PD detection circuit.

If no problem is detected in Steps ① and ②, a power-down occurs even though the voltage is normal.
Therefore, the PD detection circuit may be in failure.

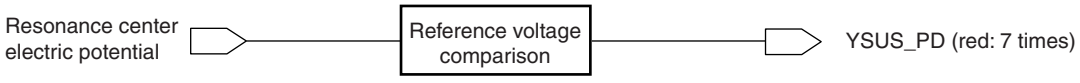
By following the above procedures, the real cause of a power-down can be judged.

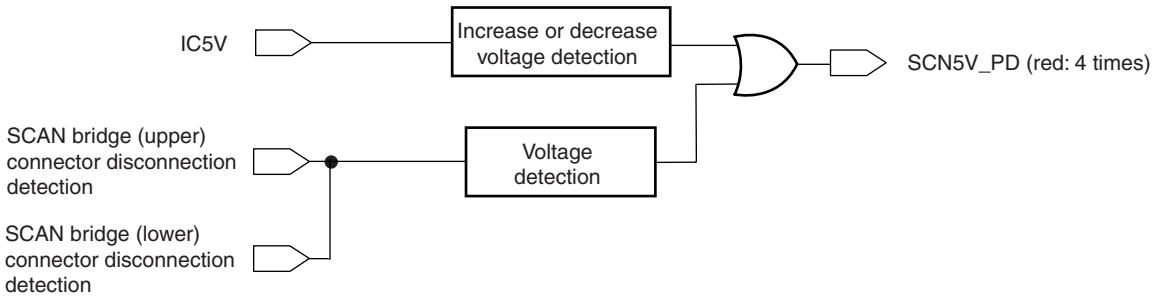
X Drive PD system (FHD)

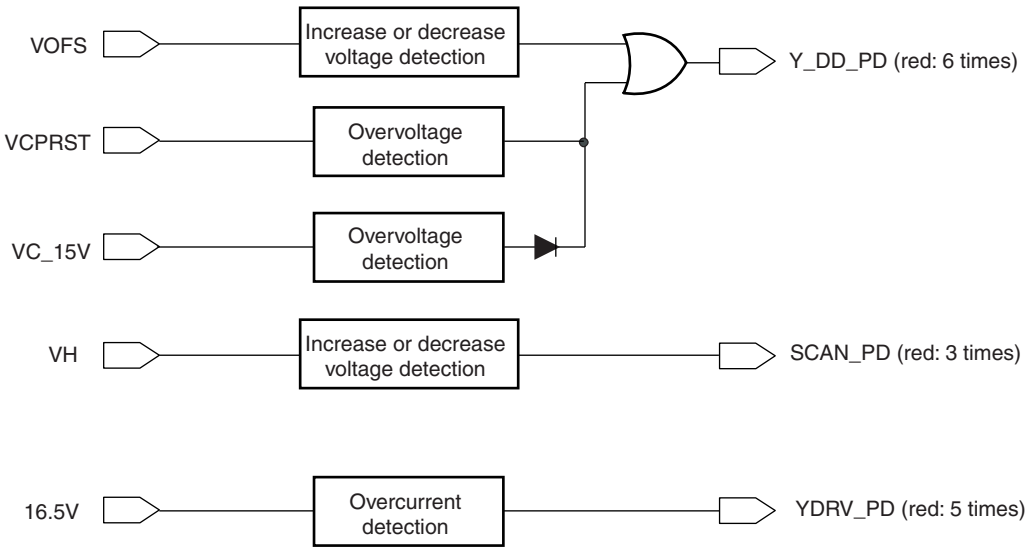




Y Drive PD system (FHD)




IC5V
Increase or decrease voltage detection
SCN5V_PD (red: 4 times)
SCAN bridge (upper) connector disconnection detection
Voltage detection
SCAN bridge (lower) connector disconnection detection

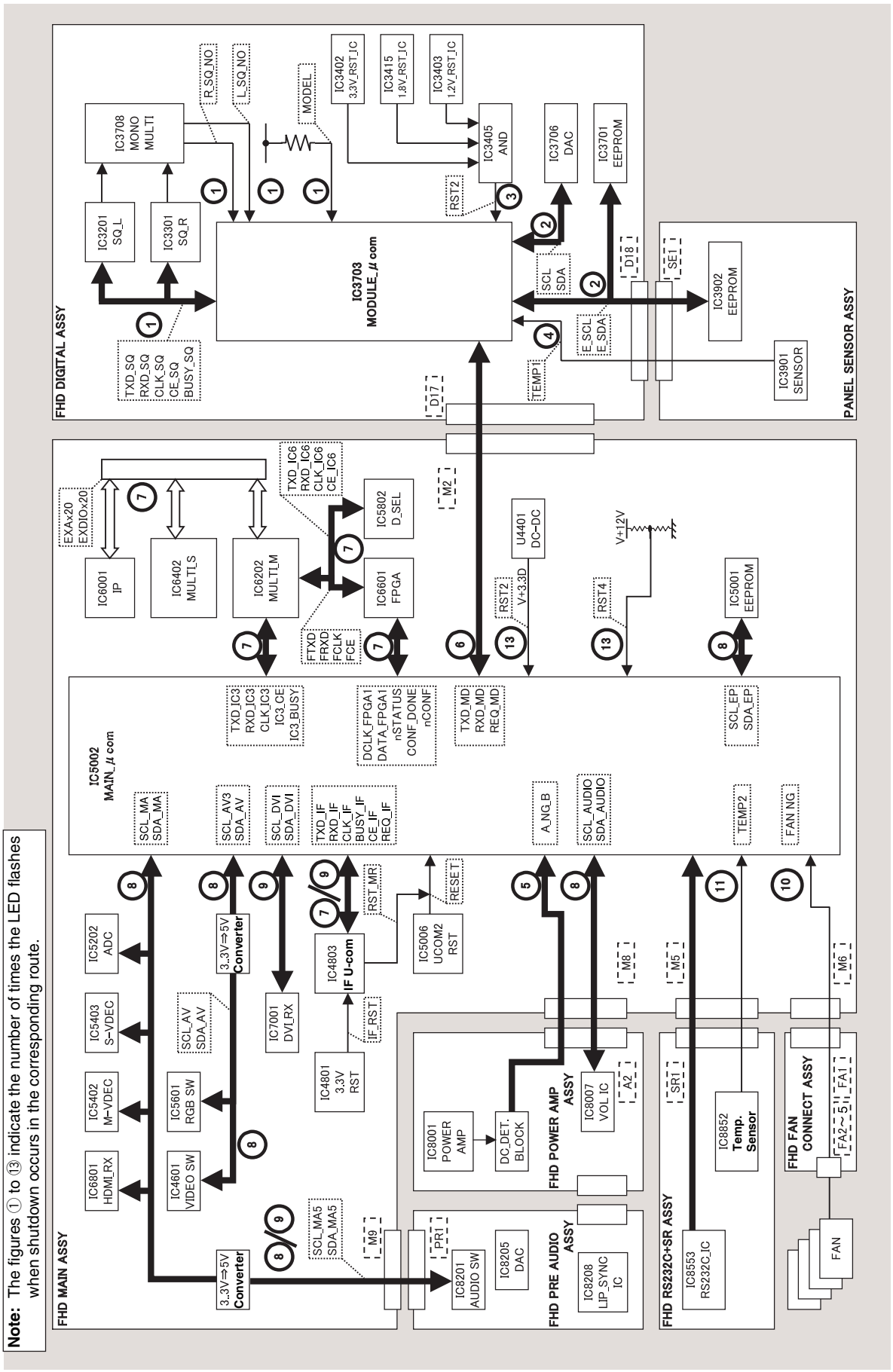


5.3 SHUT DOWN

5.3.1 SHUT DOWN SIGNAL BLOCK DIAGRAM

Shut Down Signal Block Diagram

Note: The figures ① to ⑬ indicate the number of times the LED flashes when shutdown occurs in the corresponding route.



■ SD (SHUTDOWN) DIAGNOSIS (1/2)

Frequency of LED Flashing	Major Type	Detailed Type	Log Indication in Factory Mode		Checkpoint	Possible Defective Part	Remarks
			MAIN	SUB			
Blue 1	Abnormality in the Sequence Processors	Communication error with the left and right Sequence Processors	SQ-IC	RTRY	CLK_SQ/TXD_SQ, etc.	IC3201, IC3301, IC3703	The communication between IC and the left and right Sequence Processors is not established. (It is likely that IC3703 [sender] is in failure, because communication is not established, neither that for the left nor right Sequence Processor.)
		Drive stop with the left and right Sequence Processors		SQNO	Check if the video sync signal is input to IC3101.	CN3001, CN3002, IC3001, IC3002, IC3101	If signal detection by the module microcomputer is properly performed, the unit operates on an external sync. (Or both sides of the right part of the screen, whose sync is not monitored, may be abnormal.)
		Busy		BUSY	BUSY_SQ	IC3201, IC3301, IC3703	If BUSY_SQ remains high, a shutdown is generated.
		Communication error with the left Sequence Processor		RTRY/L	RXD_AL	IC3201, IC3409, IC3703	"RXD_AL" has not been transmitted to the module microcomputer ("RXD_AR" has been transmitted). It is likely that IC3201 is not normally started.
		Drive stop with the left Sequence Processor		SQNO/L	Check if the video sync signal is input to IC3201.	CN3001, CN3002, IC3002, IC3101, IC3201, IC3409	A shutdown is generated if IC3201 is not normally started (communication error with IC3409 [flash memory]). (Or both sides of the right part of the screen, whose sync is not monitored, may be abnormal.)
		Incoherent version (hardware, software)		VER-HS	Check the model number of the Digital Assy and the destination of the sequence processors.	IC3101, IC3301	The written SQ_PROG is incoherent with data on the DIGITAL Assy.
		Incoherent version (software, with the left and right Sequence Processors)		VER-LR	Check the versions of the left and right sequence programs.	–	Different sequence programs are written on the left and right Sequence Processors.
		Communication error with the right Sequence Processor		RTRY/R	RXD_AR	IC3301, IC3410, IC3703	"RXD_AR" has not been transmitted to the module microcomputer ("RXD_AL" has been transmitted). It is likely that IC3301 is not normally started.
		Drive stop with the right Sequence Processor		SQNO/R	Check if the video sync signal is input to IC3302.	CN3001, CN3002, IC3002, IC3101, IC3301, IC3410	A shutdown is generated if IC3301 is not normally started (communication error with IC3410 [flash memory]). (Or both sides of the right part of the screen, whose sync is not monitored, may be abnormal.)
Blue 2	Failure in IIC communication with the module microcomputer	DIGITAL Assy EEPROM	MD-IIC	EEPROM	IIC communication line of IC3701	IC3701, IC3703	Check the pull-up resistor of the IIC control line and the power to the corresponding IC.
		PANEL SENSOR Assy EEPROM		BACKUP	IIC communication line of IC3902	IC3902, IC3703	
		DAC		DAC	IIC communication line of IC3706	IC3706, IC3703	
Blue 3	Abnormality in RST2 power decrease	–	RST2	–	Is the output voltage of the DC-DC converter low?	AXY1138	If RST2 does not become high after the unit is turned on, a shutdown will be generated in several seconds.
					The 12 V power is not output.	POWER SUPPLY Unit	Check if V + 12 V is started.
Blue 4	High temperature of the panel	–	TMP_NG	TEMP1	Ambient temperature	–	If TEMP1 that is read by the module microcomputer is 75°C or higher, a shutdown will be generated.
					Abnormality in the panel temperature sensor	IC3901	Check the connection with the PANEL SENSOR Assy.
Blue 5	Short-circuiting of the speakers	–	AUDIO	–	Speaker terminals	CN8402, CN8502	Check if any speaker cable is in contact with the chassis.
					AUDIO_AMP	IC8001, IC5002	Check if the AMP output is short-circuited.
					Periphery of the cable between A2 and M8	CN8002, CN4008	Check if cables are firmly connected.
Blue 6	Failure in communication with the module microcomputer	–	MODULE	–	Communication line between MAIN and MOD	IC3703, IC5002	Check the communication lines (TXD_MOD/RXD_MOD/REQ_MOD).
					Periphery of the cable between D11 and M2	CN3703, CN4207	Check if cables are firmly connected.
Blue 7	Failure in main microcomputer 3-wire serial communication	IF microcomputer	MA_SRL	IF	Communication line between IF and MAIN	IC4803, IC5002	Check the communication lines (TXD_IF/RXD_IF/CLK_IF/BUSY_IF/CE_IF/REQ_IF).
		MULTI		MULTI	Communication line between MULTI_M and MAIN	IC6202, IC5002	Check the communication lines (TXD_IC3/RXD_IC3/CLK_IC3/CE_IC3/IC3_BUSY).
				I/P	Bus communication line between IP and MULTI_M	IC6001, IC6402, IC6202	Check the communication lines (EXA/EXDIO).
				D_SEL	Communication line between D_SEL and MULTI_M	IC5802, IC6202	Check the communication lines (TXD_IC6/RXD_IC6/CLK_IC6/CE_IC6).
				SLAVE	Bus communication line between MULTI_S and MULTI_M	IC6001, IC6402, IC6202	Check the communication lines (EXA/EXDIO).
		FPGA		FPGA2	Communication line between FPGA and MULTI_M	IC6602, IC6202	Check the communication lines (FTXD/FRXD/FCLK/FCE).
				FPGA1	Config. communication line between FPGA and MAIN	IC6601, IC5002	Check the communication lines (DCLK_FPGA1/DATA_FPGA1/ nSTATUS/CONF_DONF_DONE/nCONF).

■ SD (SHUTDOWN) DIAGNOSIS (2/2)

Frequency of LED Flashing	Major Type	Detailed Type	Log Indication in Factory Mode		Checkpoint	Possible Defective Part	Remarks
			MAIN	SUB			
Blue 8	Failure in IIC communication with the main microcomputer	AV switch	MA-IIC	AV-SW	IIC communication line between AV_SW and MAIN	IC4601, IC5002	Check the communication lines (SCL_AV3/SDA_AV3 or SCL_AV/SDA_AV).
		RGB switch		RGB-SW	IIC communication line between RGB_SW and MAIN	IC5601, IC5002	Check the communication lines (SCL_AV3/SDA_AV3 or SCL_AV/SDA_AV).
		Main VDEC		M-VDEC	IIC communication line between M_VDEC and MAIN	IC5401, IC5002	Check the communication lines (SCL_MA/SDA_MA).
		Sub VDEC		S-VDEC	IIC communication line between S_VDEC and MAIN	IC5403, IC5002	Check the communication lines (SCL_MA/SDA_MA).
		AD/PLL		ADC	IIC communication line between ADC and MAIN	IC5202, IC5002	Check the communication lines (SCL_MA/SDA_MA).
		HDMI		HDMI	IIC communication line between HDMI_RX and MAIN	IC6801, IC5002	Check the communication lines (SCL_MA/SDA_MA).
		64k EEPROM		MA-EEP	IIC communication line between EEPROM and MAIN	IC5001, IC5002	Check the communication lines (SCL_EP/SDA_EP).
		VOLUME IC		AUDIO	IIC communication line between VOL_IC and MAIN	IC8007, IC5002	Check the communication lines (SCL_AUDIO/SDA_AUDIO).
		VOLUME IC			Periphery of the cable between A2 and M8	CN8002, CN4008	Check if cables are firmly connected.
		AUDIO SW		–	Periphery of the cable between PR1 and M9	CN8201, CN6801	Check the communication lines (SCL_MA/SDA_MA or SCL_MA5/SDA_MA5).
Blue 9	Failure in communication with the main microcomputer and unknown	–	MAIN	–	Communication line between IF and MAIN	IC4803, IC5002, IC5005	Check the communication lines (TXD_IF/RXD_IF/CLK_IF/BUSY_IF/CE_IF/REQ_IF).
		DVI receiver	MA-IIC	DVI	IIC communication line between DVI_RX and MAIN	IC7001, IC5002	Check the communication lines (SCL_DVI/SDA_DVI).
		AUDIO SW		AUD_SW	IIC communication line between AUDIO_SW and MAIN	IC8201, IC5002	Check the communication lines (SCL_MA/SDA_MA or SCL_MA5/SDA_MA5).
					Periphery of the cable between PR1 and M9	CN8201, CN6801	Check if cables are firmly connected.
Blue 10	FAN NG	–	FAN	–	Dirt attached to the fan motor	–	Check the fan motor
					Periphery of the FAN CONNECT Assy	FAN CONNECT Assy	FAN_NG
					Periphery of the cable between FA1 and M6 or FA2 and M5	CN8651 to CN8655, CN4003	Check if cables are firmly connected.
					Periphery of the fan control regulator	IC5003, IC5008	–
Blue 11	High temperature of the unit	–	TEMP2	–	Temperature sensor or its periphery	–	A shutdown is generated if TEMP2 becomes higher than 59°C
					Periphery of the temperature sensor	IC8852	TEMP2
					Periphery of the cable between SR1 and M5	CN8851, CN4009	Check if cables are firmly connected.
Blue 13	Failure in the POWER SUPPLY Unit	DC-DC converter power decrease	MA-PWR	M-DCDC	DC-DC converter or its periphery, RST2	U4401	Check if V + 3.3 V is started.
		POWER SUPPLY		RELAY	The 12 V power is not output, RST4	–	Check if V + 12 V is started.
					Periphery of the cable between P8 and M1	CN4006	Check if cables are firmly connected.

5.4 INFOMATION WHICH IS NOT FAILURE

1. Function of lowering the luminance level (Information on symptoms that are not failure)

■ High-temperature protection function 1

If the temperature reaches 70 °C, the limit of the maximum count of plasma discharge is gradually lowered, in order to prevent overheating.

- Temperature control is performed based on the temperature value of TEMP1.
- The maximum count of plasma discharge is decreased by 8 every 5 seconds.
- The lowest limit of the maximum count of plasma discharge is about 700.
- The maximum count of plasma discharge will increase gradually once the temperature of the unit is lowered to a specified temperature.

■ High-temperature protection function 2 (Only for the FHD panel)

Because the heat value with the PDP-500EX panel during lighting of cells is somewhat greater than with other models, the count of plasma discharge with regard to the input APL is lowered if the temperature of the unit reaches 45°C. In actuality, the ABL adjustment value is offset.

- Temperature control is performed based on the temperature of TEMP1.
- The ABL adjustment value is decreased by one step every 30 seconds.
- The ABL adjustment value will increase gradually once the temperature of the unit is lowered to a specified temperature.

■ Panel Protection Function 1 (for preventing burn-in during Still Picture mode)

If Still Picture mode is continued for 3 minutes or more, the limit of the maximum count of plasma discharge is gradually lowered, in order to reduce burn-in on the display.

- Whether the image displayed is a still picture or not is detected, and the Panel Protection Function will be activated (Even if the mouse pointer is moved on a still picture, that picture is judged as a still picture.)
- The maximum count of plasma discharge is decreased by 8 every 5 seconds.
- The lowest limit of the maximum count of plasma discharge is about 700. (It takes about 15 minutes to reach the lowest limit, although it depends on what is displayed on the screen.)
- If the image is changed to an animated picture, the maximum count of plasma discharge is gradually increased.

Note: How to lower the luminance level is the same as that for the high-temperature protection function 1.

■ Panel Protection Function 2 (for protecting the SCAN IC)

If a particular load is added on the SCAN IC locally, as shown in the figure on the right, the limit of the maximum count of plasma discharge is gradually lowered.

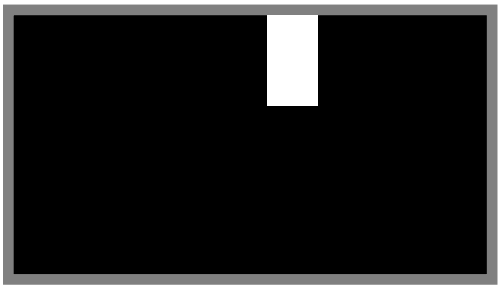
Note: How to lower the luminance level is the same as that for the high-temperature protection function 1.

Example: A display with which the SCAN IC protection function is to be activated

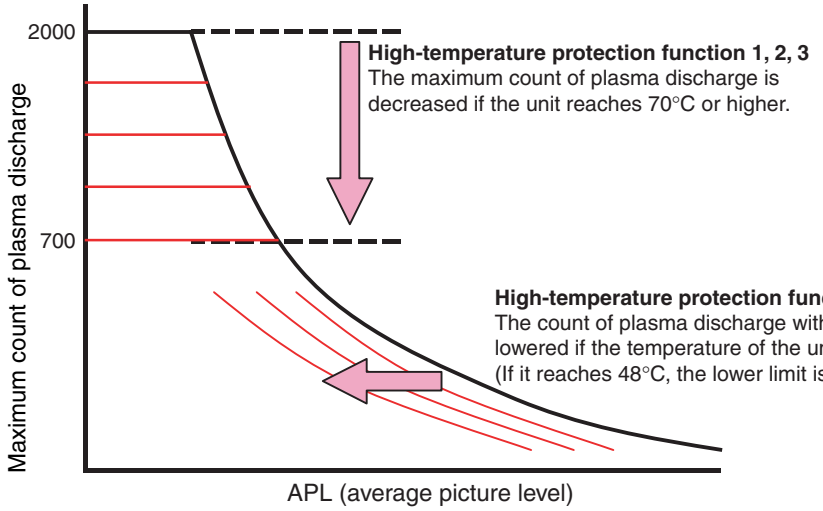
■ Panel Protection Function 3 (for protecting the panel from cracking)

The heating value for a bright window part on the screen, as shown in the figure on the right, is high. So, if such a pattern is recognized, the limit of the maximum count of plasma discharge is gradually lowered.

Note: How to lower the luminance level is the same as that for the high-temperature protection function 1.



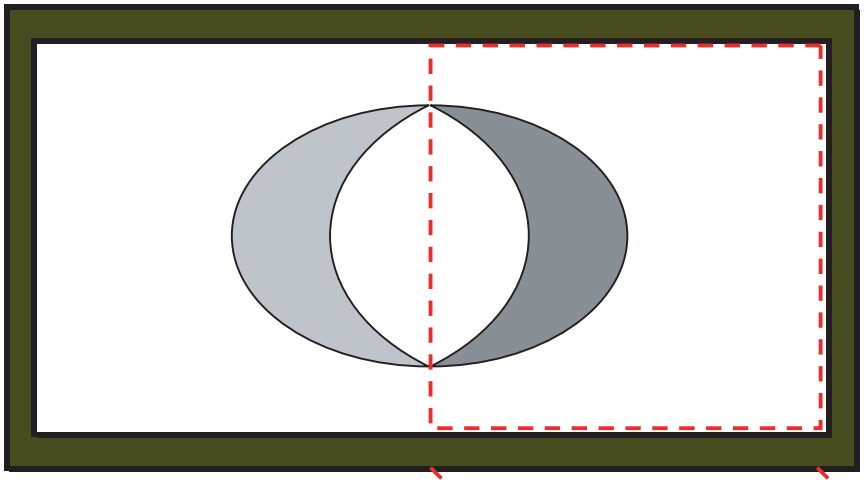
Example: A display with which the panel-cracking protection function is to be activated


2000
700
Maximum count of plasma discharge
APL (average picture level)
High-temperature protection function 1, 2, 3
The maximum count of plasma discharge is decreased if the unit reaches 70°C or higher.
High-temperature protection function 2
The count of plasma discharge with regard to the input APL is lowered if the temperature of the unit reaches 45°C or higher.
(If it reaches 48°C, the lower limit is further decreased.)

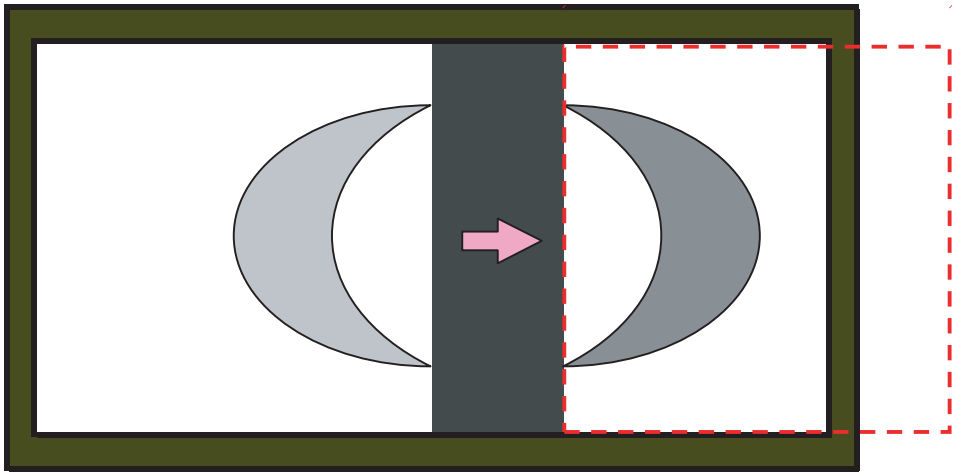
2. On dislocation of the mask indication, which is generated on the right side of the screen

With the application-specific integrated circuit (ASIC) designed for the FHD panel, the mask indication may be dislocated. When the unit is turned on with the panel mask indication ON, the mask indication is dislocated on approximately one unit out of three hundred. As end users basically do not use panel mask indications, this is not a problem in normal usage. Dislocation may be generated during failure analysis or when turning the unit off then back on during voltage margin adjustment.

Normal mask indication



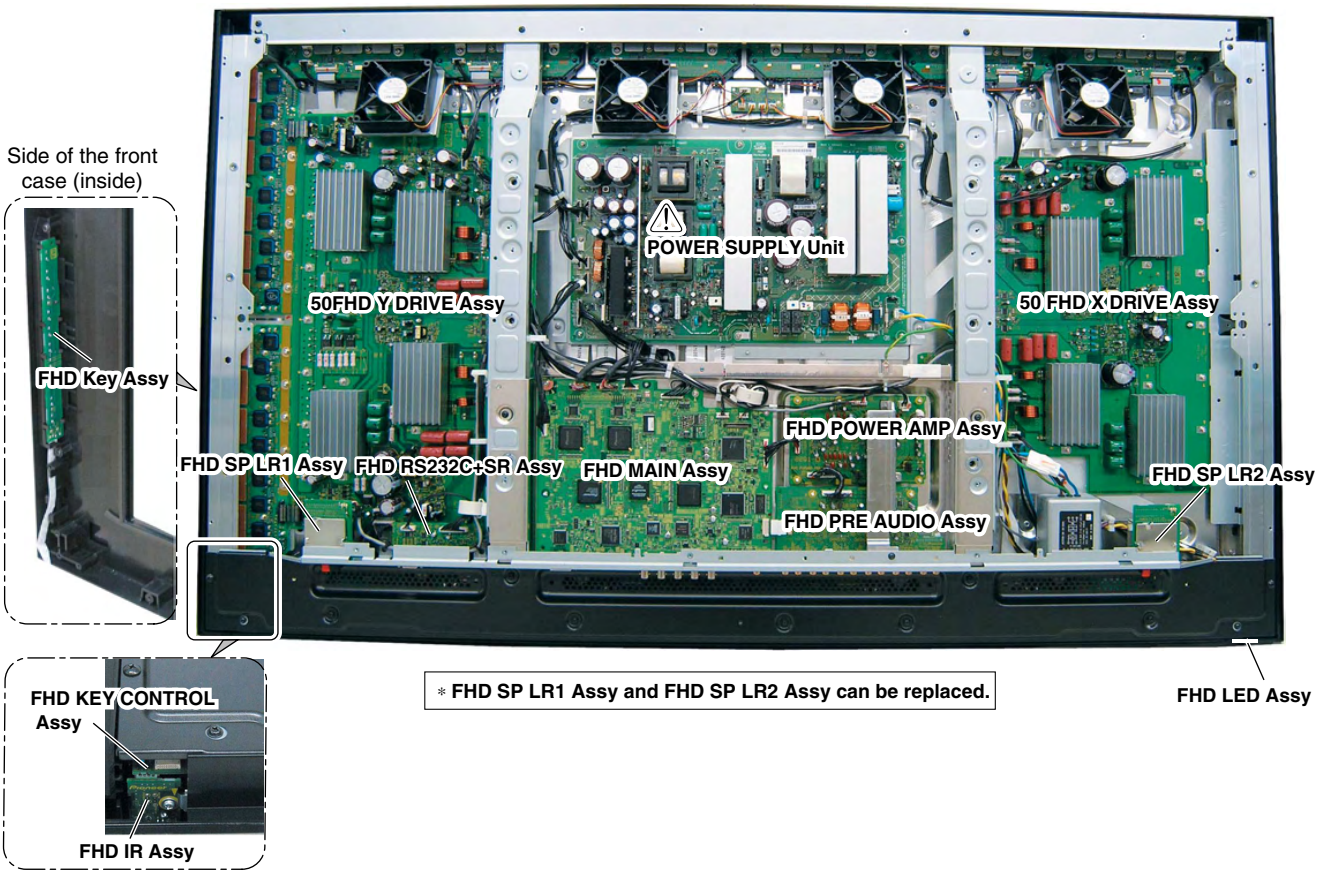
Dislocation of mask indication



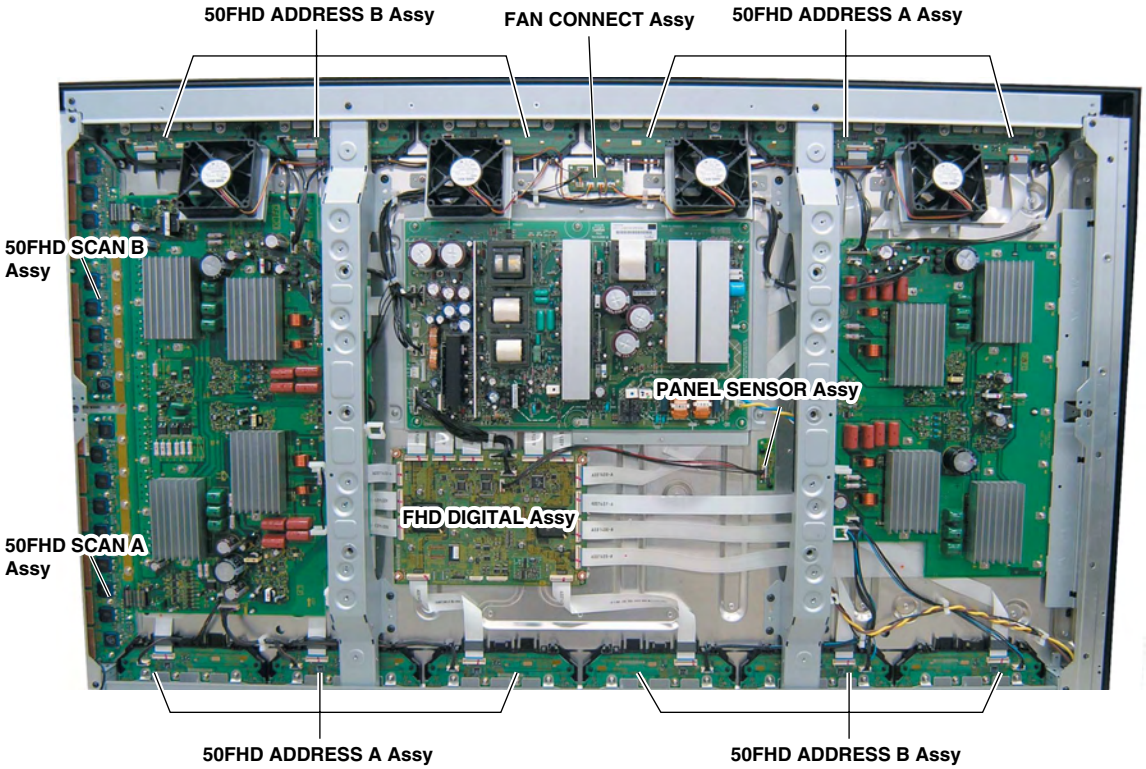
Note: The mask indication pattern indicated above is not a real pattern.

6. DISASSEMBLY

6.1 PCB LOCATION



* FHD SP LR1 Assy and FHD SP LR2 Assy can be replaced.

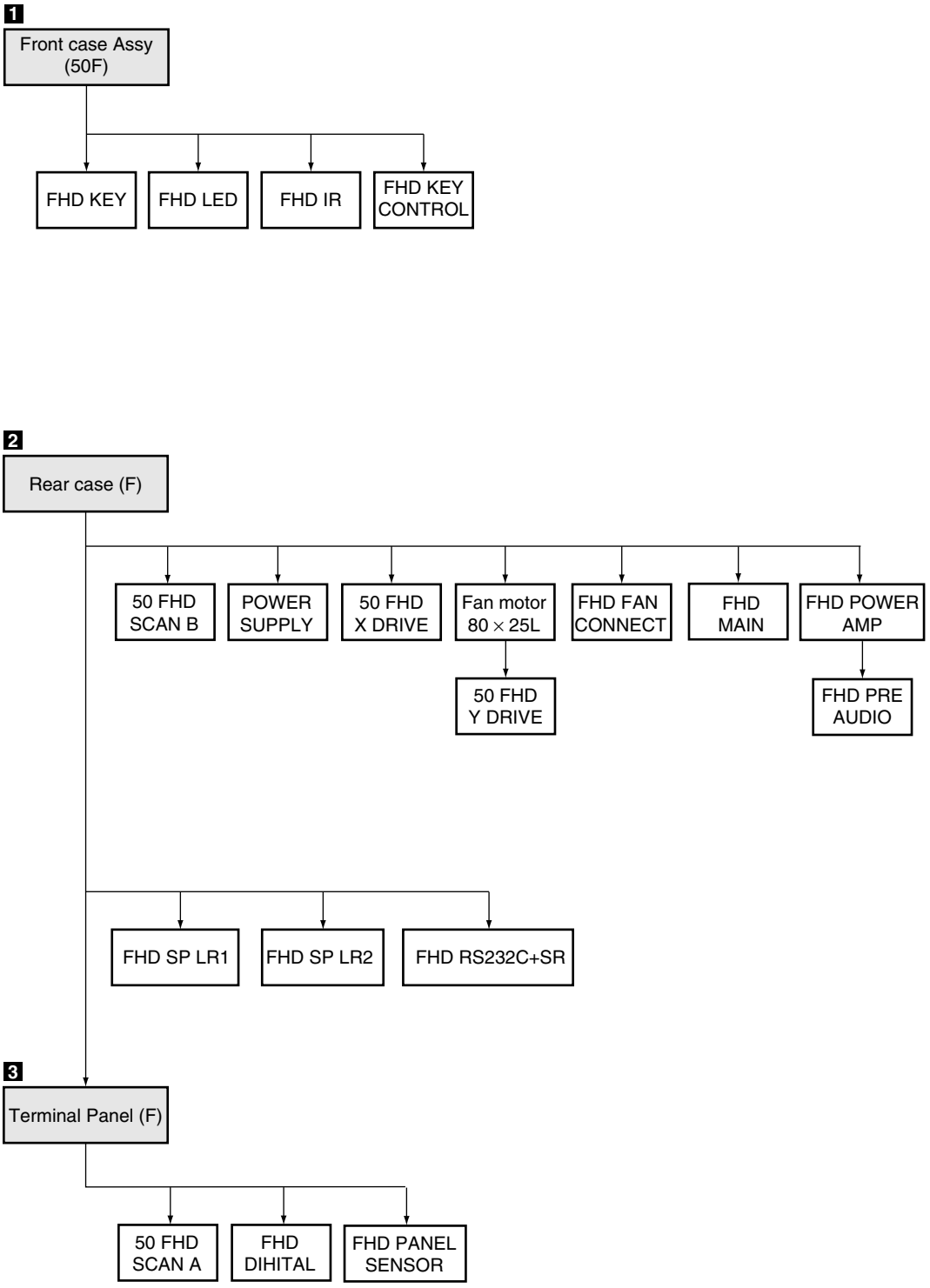


6.2 FLOWCHART OF THE MAIN PARTS AND PC BOARDS EXCHANGE

Note : Even if the unit shown in the photos and illustrations in this manual may differ from your product, the procedures described here are common.

Flowchart of the main parts and PC Boards removal

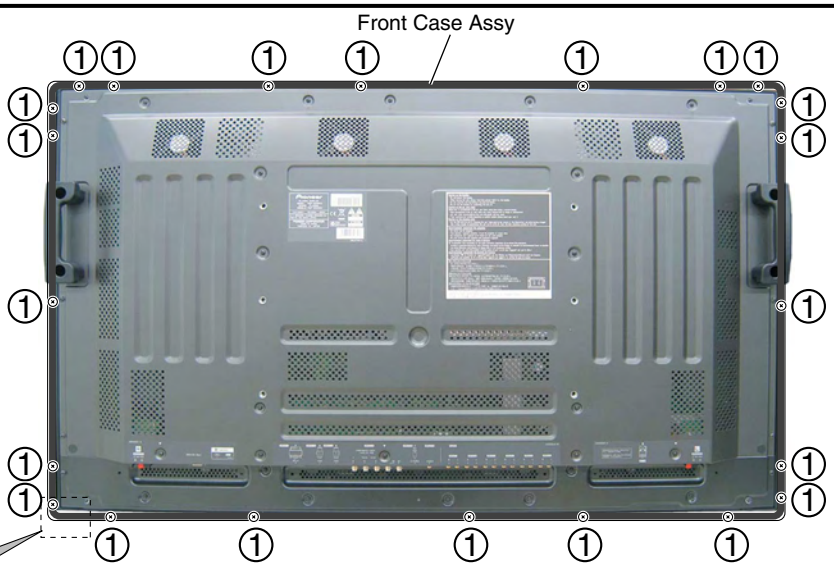
It is effective when removing the main parts and PC Boards by the following step.

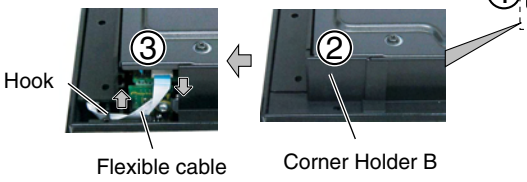


Disassembly (1)

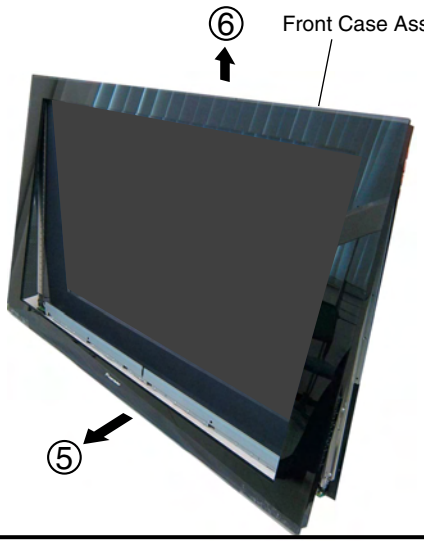
1 Front Case Assy

① Remove the 22 screws. (APZ30P100FTB)
② Remove the corner Holder B.
③ Disconnect the flexible cable.
④ Remove the front case assy.





⑤ ⑥ Remove the front case assy.

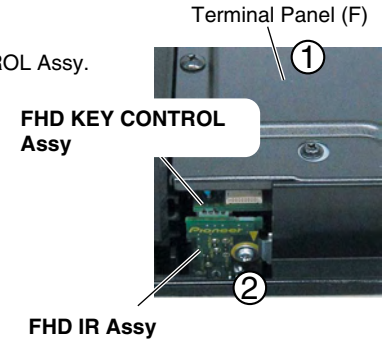


1 -1 FHD Key Assy, FHD IR Assy, FHD KEY CONTROL Assy

• FHD **Key Assy**

• FHD **IR Assy, FHD KEY CONTROL Assy**

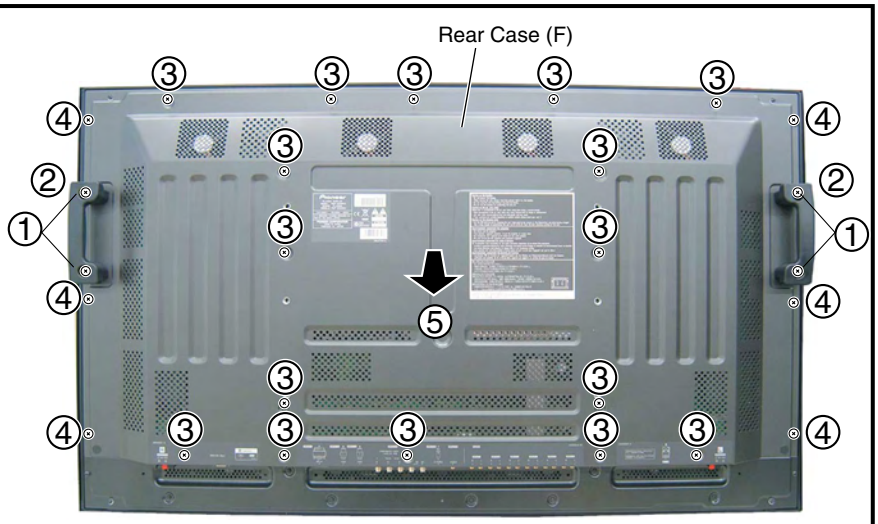
① Remove the Terminal Panel (F). (refer to "Terminal Panel")
② Remove the one screw
③ Remove the IR Assy, KEY CONTROL Assy.



Disassembly (2)

2 Rear Case (F)

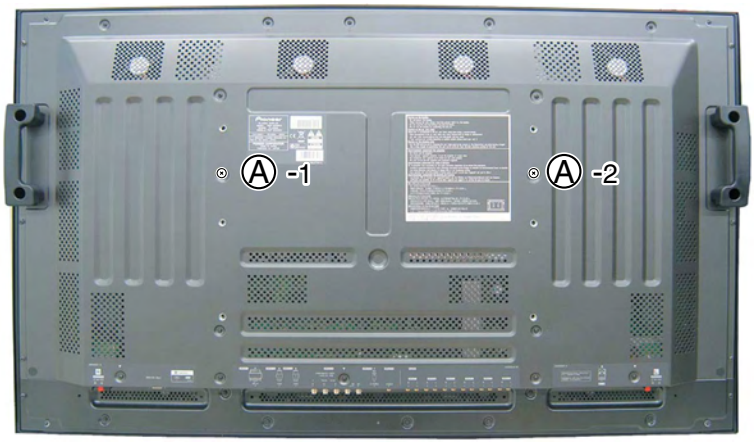
① Remove the four screws. (HMB50P140FTB)
② Remove the 2 grips.
③ Remove the 16 screws.(AMZ30P060FTB)
④ Remove the six screws.(TBZ40P080FTB)
⑤ Remove the rear case (F).



● **About reattachment**

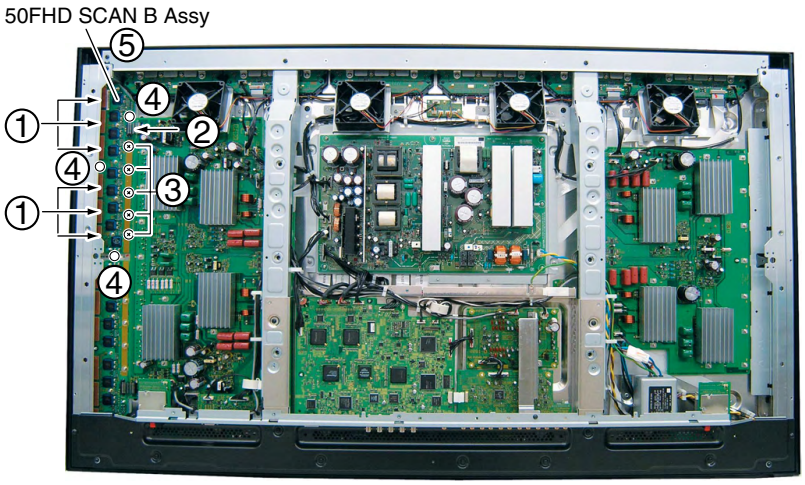
For easy reattachment, be sure to install the screws for the Rear case in the order indicated in the photo. After securing those screws in place, the other screws

Ⓐ -1 one screw. (AMZ30P060FTB)
Ⓐ -2 one screw. (AMZ30P060FTB)



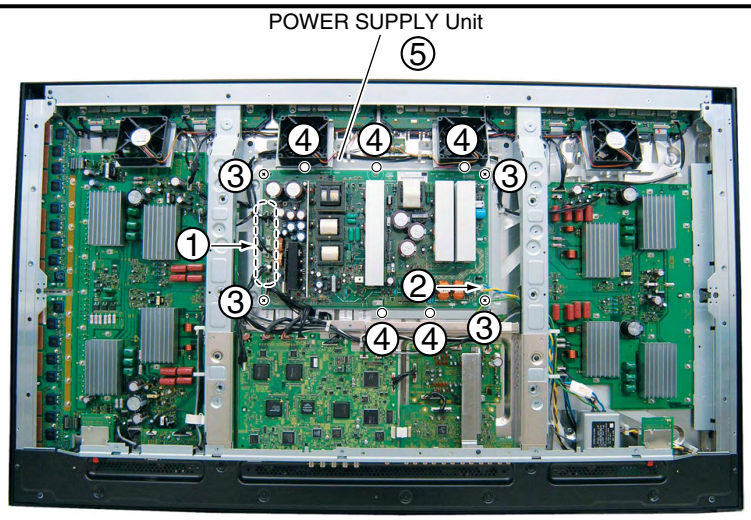
2 -1 50FHD SCAN B

① Disconnect the six connectors.
② Disconnect the one connectors.
③ Remove the five screws.
④ Unhook the three hooks.
⑤ Remove the 50FHD SCAN B Assy.



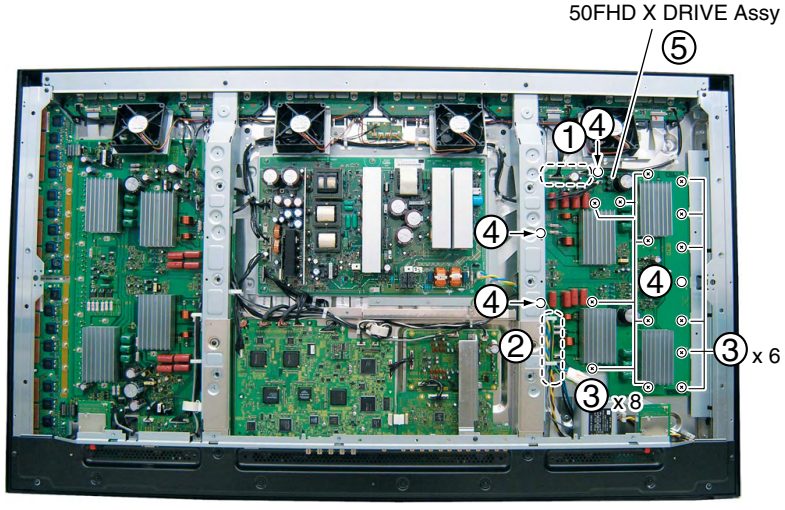
2 -2 POWER SUPPLY Unit

① Disconnect the seven connectors.
② Disconnect the one connectors.
③ Remove the four screws.
④ Unhook the five hooks.
⑤ Remove the POWER SUPPLY Unit.



2 -3 50FHD X DRIVE Assy

① Disconnect the four connectors.
② Disconnect the three connectors.
③ Disconnect the 14 screws.
④ Unhook the five hooks.
⑤ Disconnect the 50FHD X DRIVE ASSY.

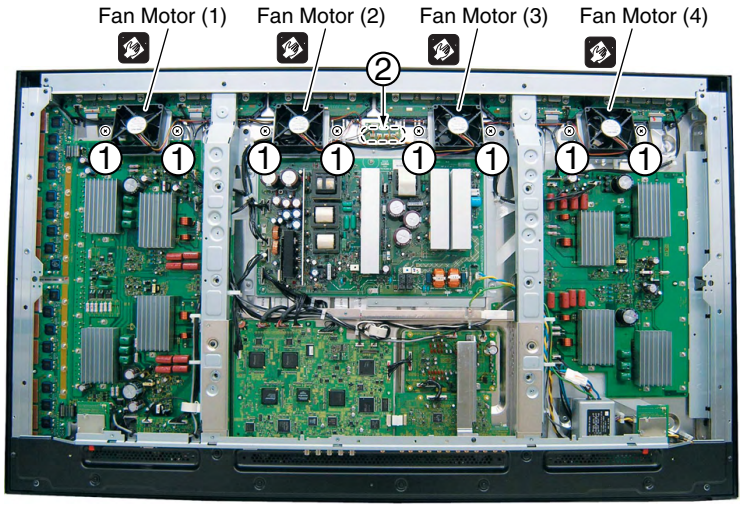


2 -4 Fan Motor

Fan Motor (1) (2) (3) (4)

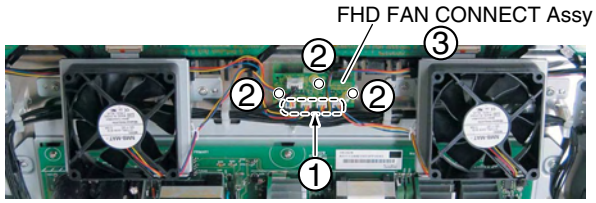
① Remove the two screws.
② Disconnect the one connector.

Cleaning liquid: GEM1004
Cleaning paper: GED-008



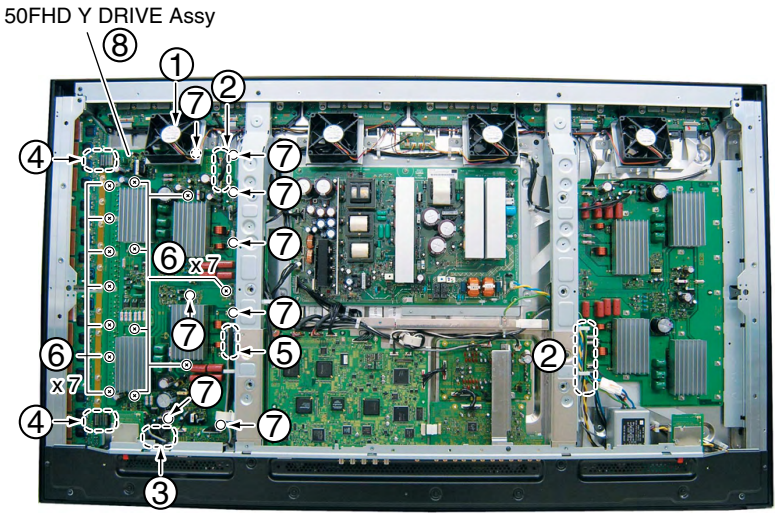
2 -5 FHD FAN CONNECT Assy

① Disconnect the five connectors.
② Unhook the three hooks.
③ Remove the FHD FAN CONNECT.



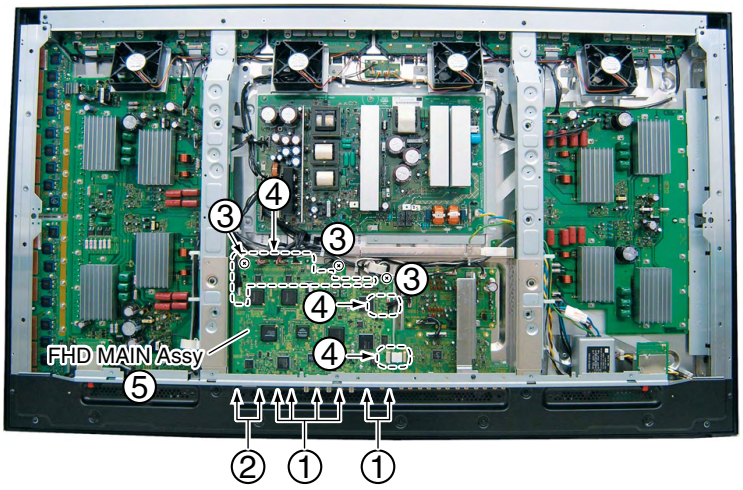
2 -6 50FHD Y DRIVE Assy

① Remove the Fan Motor 1. (refer to " Fan Motor")
② Disconnect the four connectors.
③ Disconnect the two connectors.
④ Disconnect the two connectors.
⑤ Disconnect the flexible cable.
⑥ Remove the 14 screws.
⑦ Unhook the 8 hooks.
⑧ Remove the 50FHD Y DRIVE Assy.



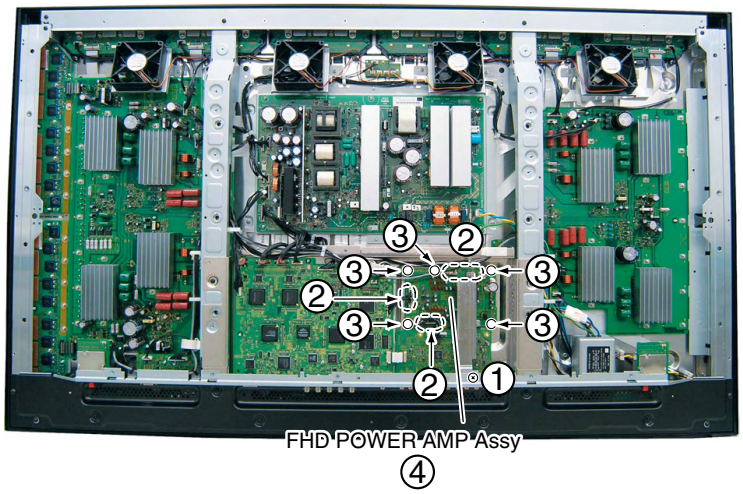
2 -7 FHD MAIN Assy

① Remove the six screws.
② Remove the hix two head screws.
③ Remove the three screws.
④ Disconnect the 9 connectors.
⑤ Remove the FHD MAIN Assy.



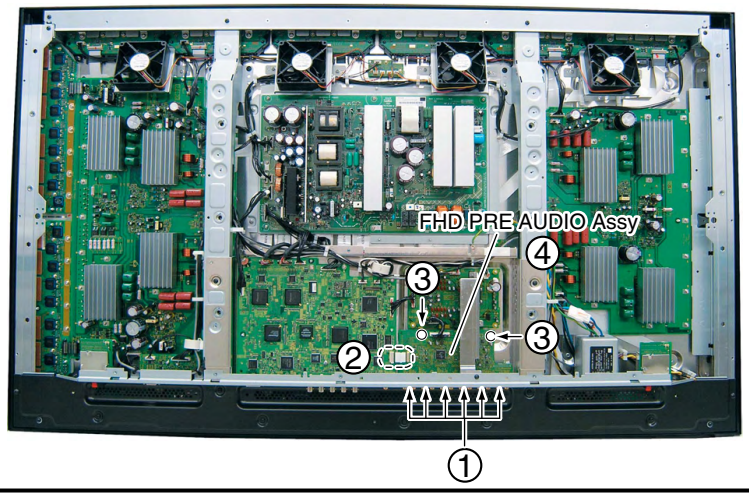
2 -8 FHD POWER AMP Assy

① Remove the one screws.
② Disconnect the four connectors.
③ Unhook the five hooks.
④ Remove the FHD POWER AMP Assy.



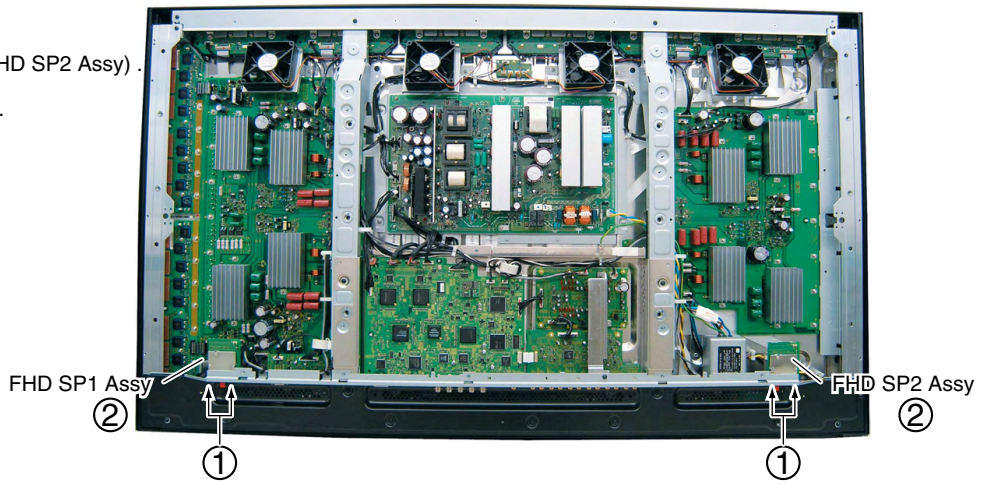
2 -9 FHD PRE AUDIO Assy

① Remove the six screws.
② Disconnect the one connector.
③ Unhook the two hooks.
④ Remove the FHD PRE AUDIO Assy.



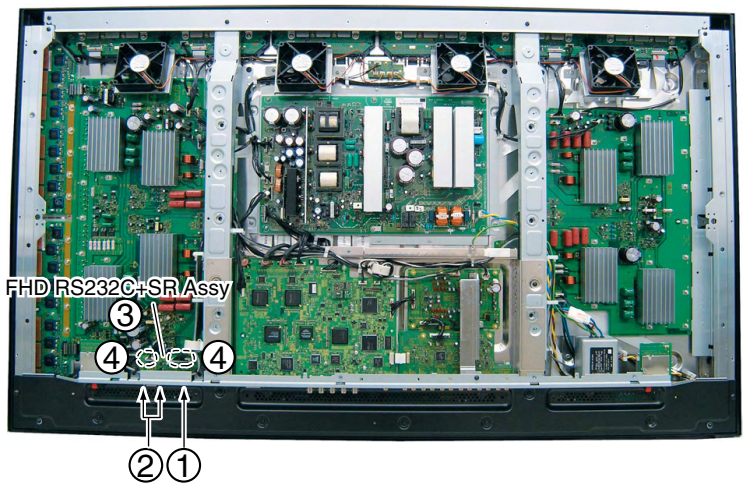
2 -10 FHD SP1, FHD SP2 Assys

① Remove the two screws.
② Remove the FHD SP1 Assy (FHD SP2 Assy) .
③ Disconnect the one connectors.



2 -11 FHD RS232C+SR Assy

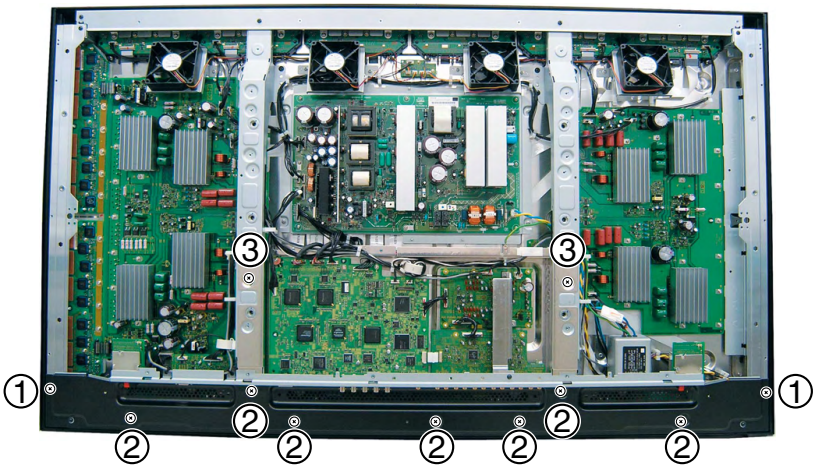
① Remove the one screws.
② Remove the two hex head screws.
③ Remove the FHD RS232C+SR Assy.
④ Disconnect the two connectors.



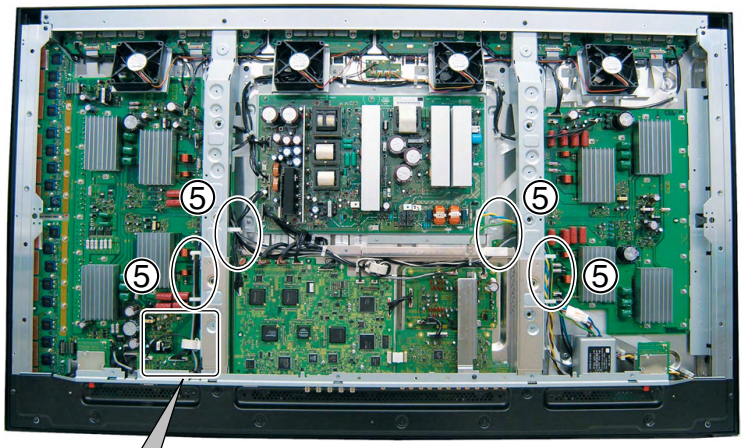
Disassembly (3)

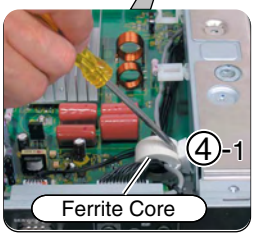
3 Terminal Panel (F)

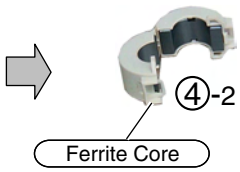
① Remove the two screws.(TBZ40P080FTB)
② Remove the seven screws.(AMZ30P060FTB)
③ Remove the two screws.(AMZ30P060FTB)



④ Remove the Ferrite Core.
⑤ Remove the cable from the wire saddle.



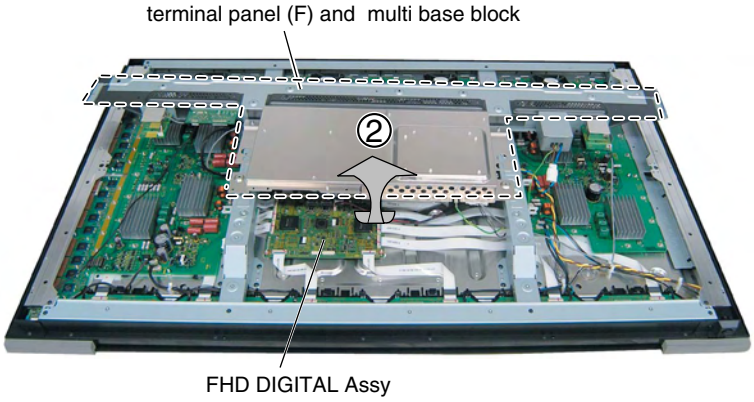




3 -1 FHD DIGITAL Assy

① Remove the terminal panel (F) (refer to " Terminal Panel")
② terminal panel (F) and multi base block is caused.

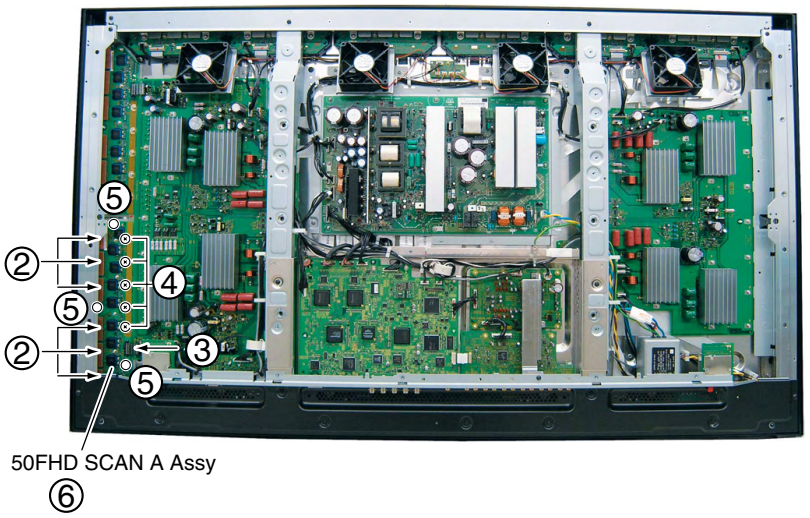
Diagnosis of FHD DIGITAL Assy section



3 -2 50FHD SCAN B

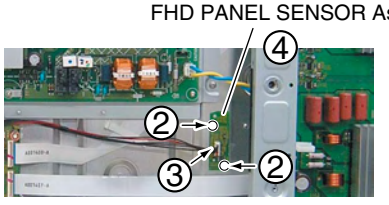
① Remove the terminal panel (F) (refer to " Terminal Panel")
② Disconnect the six connectors.
③ Disconnect the one connectors.
④ Remove the five screws.
⑤ Unhook the three hooks.
⑥ Remove the50FHD SCAN A Assy.

Remove the two screws.(AMZ30P060FTB)



3 -3 FHD PANEL SENSOR Assy

① Remove the terminal panel (F) (refer to " Terminal Panel")
② Remove the two nyron rivet.
③ Disconnect the one connectors.
④ Remove the FHD PANE SENSOR Assy.



7. ADJUSTMENT

7.1 PARTS CHANGE OF NOTES

1. At shipment, the unit is adjusted to its best conditions. Normally, it is not necessary to readjust even if an assembly is replaced. If the adjustment is shifted or if it becomes necessary to readjust because of part replacement, etc., perform the adjustment as described below.
2. Any value changed in Service/Factory mode will be stored in memory as soon as it is changed. Before readjustment, take note of the original values for reference in case you need to restore the original settings.
3. Use a stable AC power supply.

7.2 POSSIBLE CASES WHERE READJUSTMENT IS REQUIRED

■ When any of the following assemblies is replaced

POWER SUPPLY Unit	No adjustment required
FHD MAIN Assy	Refer to "8.2.3.5 FINAL SETUP"
FHD DIGITAL Assy	Refer to "7.3 BACKUP OF ADJUSTMENT VALUES FOR THE MAIN UNIT"
50FHD X DRIVE Assy	No adjustment required
50FHD Y DRIVE Assy	No adjustment required
50FHD SCAN A Assy	No adjustment required
50FHD SCAN B Assy	No adjustment required
Service Panel Assy	Refer to "7.4.1 ADJUSTMENTS WHEN THE SERVICE PANEL ASSY IS REPLACED" and "7.6 HOW TO CLEAR VARIOUS LOGS."
Other assemblies	No adjustment required

■ When any part in the following assemblies is replaced

POWER SUPPLY Unit	The assembly must be replaced as a unit, and no part replacement is allowed.
FHD DIGITAL Assy	No adjustment required
50FHD X DRIVE Assy	After any of the parts shown below on the 50FHD X DRIVE or 50FHD Y DRIVE Assy are replaced, a waveform adjustment is required.
50FHD Y DRIVE Assy	

Object parts

Assy	Ref. No.	Part Category	Part No.
50FHD X DRIVE Assy	IC1206	Photo Coupler	PS9117-TLB
	IC1207	FET Driver	TND307TD-TBB
	IC1210	FET Driver	TND307TD-TBB
50FHD Y DRIVE Assy	IC2242	Photo Coupler	PS9117-TLB
	IC2241	FET Driver	TND307TD-TBB
	IC2252	FET Driver	TND307TD-TBB

Refer to "7.5 ADJUSTMENTS WHEN THE DRIVE ASSY ARE REPLACED".

Other assemblies	No adjustment required

■ Nonreplaceable parts

FHD DIGITAL Assy

Ref. No.	Part Category	Part No.	Remarks
IC3701	4K EEPROM	BR24L04FJ-W-TBB	Replaceable if backup data are to be copied to the part after replacement

PANEL SENSOR Assy

Ref. No.	Part Category	Part No.	Remarks
IC3902	2K EEPROM	BR24L02FJ-W-TBB	Replaceable if the FHD DIGITAL Assy is not replaced simultaneously

FHD MAIN Assy

Ref. No.	Part Category	Part No.	Remarks
IC4601	CVBS SW IC	R2S11002AFT-K	
IC4803	FLASH UCOM	AGC1005- -PI-K	The program for the microcomputer is written on it.
IC5001	64K EEPROM	BR24L64F-W-TBB	Adjustment data that are specific to the Assy are written on it.
IC5005	FLASH MEMORY IC	AGC1012- -PI-K	The program for the microcomputer is written on it.
IC5202	A/D CONVERTER	AD9985KSTZ-110-K	
IC5402	3D Y/C SEPA & VDEC IC	UPD64015AGM-UEU-K	
IC5403	VIDEO DECODER	TVP5150AM1PBS-K	
IC5601	RGB SW IC	R2S11001FT-K	
IC6203	FLASH MEMORY IC	AGC1013- -PI-K	The program for the microcomputer is written on it.
IC6802	2K EEPROM	BR24L02FJ-W-TBB	EDID data are written on it.
IC6803	2K EEPROM	BR24L02FJ-W-TBB	EDID data are written on it.
IC7003	2K EEPROM	BR24L02FJ-W-TBB	EDID data are written on it.
IC7004	2K EEPROM	BR24L02FJ-W-TBB	EDID data are written on it.

7.3 BACKUP OF ADJUSTMENT VALUES FOR THE MAIN UNIT

■ Outline

Adjustment data are stored in the EEPROM (IC3701/4K) on the FHD DIGITAL Assy in the production process.
Those adjustment data are also automatically stored in the EEPROM (for backup: IC3902/2K) on the PANEL SENSOR Assy.

■ Backed up data

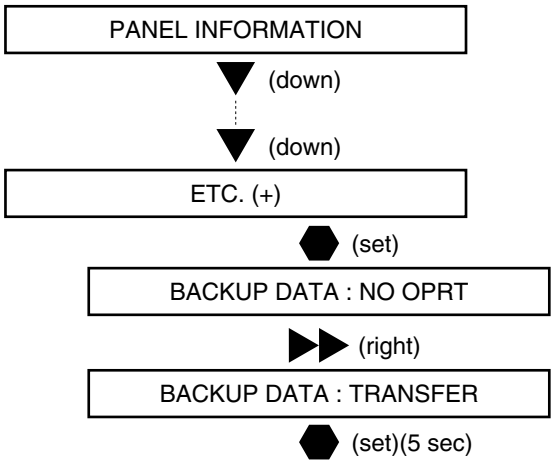
- Voltage margine adjustment value
- Electricity upper limit adjustment value
- Panel white balance adjustment value
- Drive waveform adjustment value
- PD/SD histories
- Hour-meter count
- Pulse-meter count
- Serial No.
- P-ON counter value

7.3.1 HOW TO COPY THE BACKUP DATA (when replacing the Assy with one for service)

When replacing the FHD DIGITAL Assy with one for service, copy the backup data, as shown below:

■ **Command:** BCP command
(Be effective between FAY command)

■ **Factory Menu:**



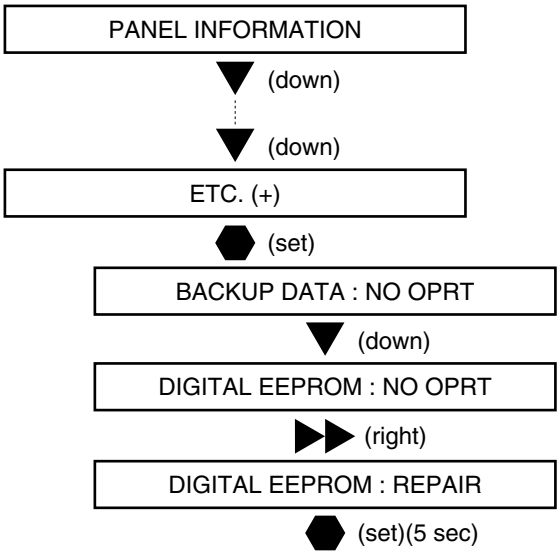
Note:
If copying of the backup data fails in the above procedure, the red LED lights, and the blue LED flashes, as a warning that no backup data were copied.

7.3.2 HOW TO COPY THE BACKUP DATA (when reusing a second-hand Assy)

When replacing the FHD DIGITAL Assy with one that was mounted on another product, copy the backup data, as shown below:

■ **Command:** FAJ command
(Be effective between FAY command)

■ **Factory Menu:**



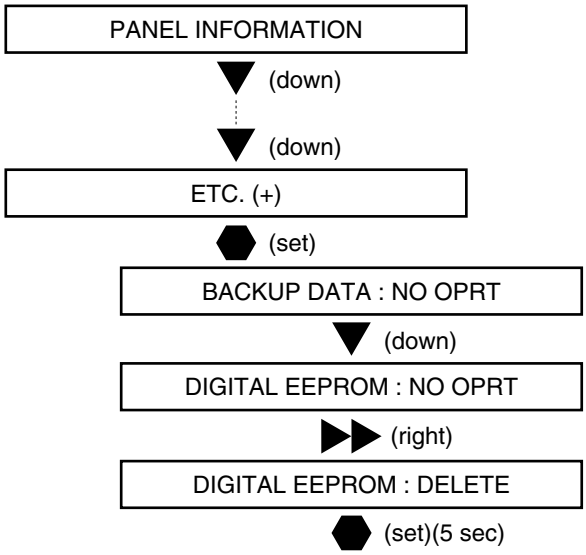
7.3.3 FORMATION OF A FHD DIGITAL ASSY (RE-SERVICE PART)

■ How to adjust the FHD DIGITAL Assy that is mounted on one product so that it can be mounted on another product

When adjusting the FHD DIGITAL Assy that is mounted on one product so that it can be mounted on another product, proceed as follows:

■ **Command:** UAJ command
(Be effective between FAY command)

■ **Factory Menu:**



Note:
If the secondhand FHD DIGITAL Assy is mounted in the product then the unit is turned on then back off again, the data in the EEPROM on the FHD DIGITAL Assy are copied over the EEPROM in the PANEL SENSOR Assy.

7.4 EXCHANGE OF SERVICE PANEL ASSY

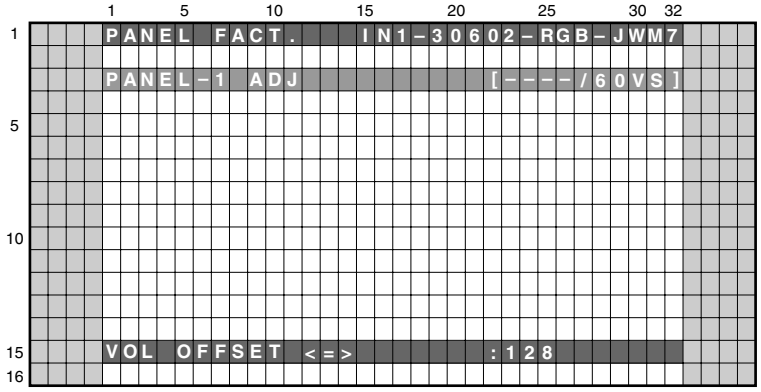
7.4.1 ADJUSTMENTS WHEN THE SERVICE PANEL ASSY IS REPLACED

Flow for panel replacement

Voltage margin adjustment is required after the Panel Assy is replaced with one for service.

[Preparations]

- Basically, the Panel Factory menu is used for the voltage margin adjustment.
- The 60-Hz video sequence is used as the drive sequence.
- While adjusting the voltage margin using the Panel Factory menu, the current drive sequence is indicated on the screen, as shown below. Make sure that 60VS is always indicated during adjustment.



Example of an OSD during Panel Factory mode

[Supplement]

- When the Raster Mask for margin adjustment is displayed during Panel Factory mode, the Panel White Balance setting value is default, and the Panel Gamma setting is "Straight" in the PANEL-1 ADJ layer. The third line of the OSD during Panel Factory mode is "----/****," where "****" is the type of drive sequence set.

- If you wish to adjust using RS-232C commands, note that the commands are different from those used during Factory mode. The commands for this are indicated below:
  PAV S00: To switch from Panel Drive mode to Panel Factory mode
  VFQ S03: To switch the Drive Sequence to Video 60 H
  WBI S01: To temporarily reset the Panel WB adjustment value to default (To cancel resetting, issue WBI then S00.)
  PGM S00: To switch the Gamma setting to "Factory"

Note: If the power is shut down during the adjustment procedure, issue the above commands again.

OVERVIEW

Operation switch

When the voltage is to be adjusted, do the following:

Enter Factory mode.
Display RST MASK 05 (black).

FAY
MKS S55

↓

Voltage setting

Set VOL SUS and VOL RST P, and set temporary VOL OFFSET, as indicated below:

VOL SUS: 125
VOL RST P: Set voltage as shown at panel label.
VOL OFFSET: Set voltage as shown at panel label.

VSU125
VRP***
VOS

↓

Aging

Aging process for 3 minutes with RST MASK 01 (white)

To prevent an error caused by the temperature characteristics, raise the panel temperature to a certain extent beforehand. But do not perform aging more than 20 minutes.

MKS S51

↓

Vofs actual adjustment (② to ④)

Signals to be measured
VOL OFFSET lower limit:
VOL OFFSET_min1 "light purple"
VOL OFFSET_min2 "light blue"
VOL OFFSET_min3 "violet"
VOL OFFSET upper limit:
VOL OFFSET_max1 "red 582"
VOL OFFSET_max2 "green 850"
VOL OFFSET_max3 "blue 850"

MKS S59
MKS S62
MKS S63
MKS S64
MKS S66
MKS S67

Vofs setting

Set according to the table for Vofs setting values.

VOF***

↓

CA check with black

With RST MASK 05 (black) displayed, check if there are stationary or horizontally moving luminescent spots.

MKS S55

↓

Operation switch

Do the following after the voltage adjustment is completed:

Exit Factory mode.

MKS S00
FAN

↓

CA check

Check that the picture is properly displayed.

Use DVD, LD, and broadcast signals for checking.

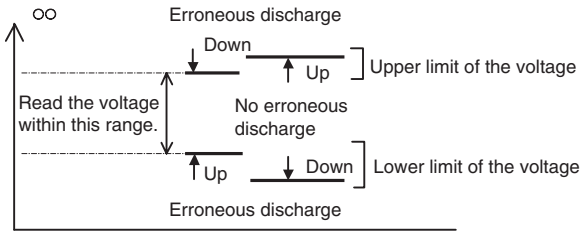
Ranges of the adjustable voltages
(Variable voltage ranges when the upper and lower limit of each voltage are to be checked in this flowchart)
Vsus = 205 [V]
Vofs = 15 to 60 [V]
Vyprst = 220 to 271 [V]
Vxnrst = 170 [V]
Vh = 130 [V]
Vadr = 60 [V]

Ranges of the voltage settings
(Ranges of the voltage settings for the unit)
Vsus = 205 [V]
Vofs = 28 to 46 [V]
Vyprst = 220 to 271 [V]
Vxnrst = 170 [V]
Vh = 130 [V]
Vadr = 60 [V]

When calculating the voltage, round off the fractional part.
(For circuit protection, it is desirable to set the voltage to a lower value.)

In the following text, voltage is described in absolute values.

For margin measuring, read the voltage within the hysteresis (stricter value), as shown below:



The Definition of Abnormal Cells
Abnormal bright cells: Within five cells on screen.
(only one cell within a radius of 1 cm)

Abnormal dark cells: Under fifteen cells on screen.
(under two cells within a radius of 1 cm)

Count abnormal cells at a distance of 1 cm from panel.
If abnormal cells won't occur longer than one second, do not count the abnormal cells.
Do not count still dark cells and bright cells.

Shipment standards for the unit:
VOL SUS setting = 125/205 V
Vofs setting = 28 to 46 V
Vofs_max-Vofs setting: 10 V or more
Vofs setting-Vofs_min: 9 V or more
Vyprst setting = 220 to 271 V

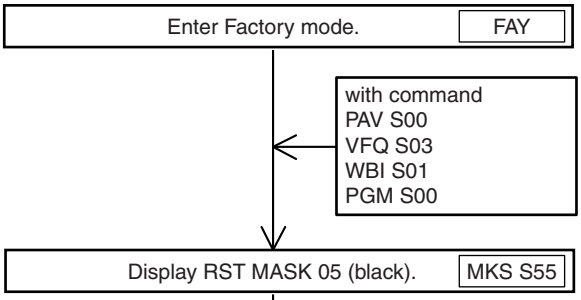
Definition of tones for the measuring signals

(Digital Raster signal, Video-60 Hz sequence, ABL_ON)

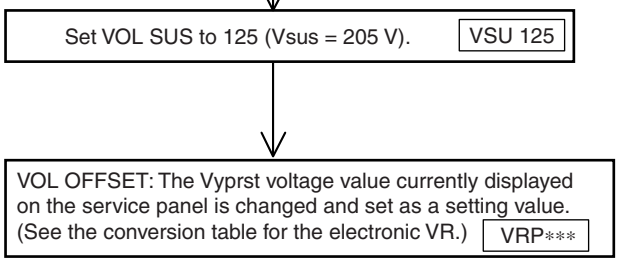
White	Black	Light purple	Light blue	Violet	Red 582	Green 850	Blue 850
R 1023/1023	R 0/1023	R 277/1023	R 464/1023	R 1023/1023	R 582/1023	R 0/1023	R 0/1023
G 1023/1023	G 0/1023	G 130/1023	G 1023/1023	G 464/1023	G 0/1023	G 850/1023	G 0/1023
B 1023/1023	B 0/1023	B 277/1023	B 1023/1023	B 1023/1023	B 0/1023	B 0/1023	B 850/1023

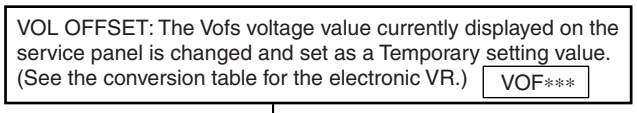
① Preparations

Initial setting

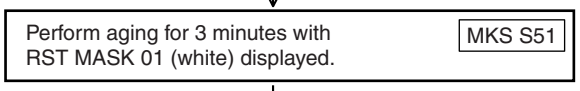


Voltage setting


Set VOL SUS to 125 (Vsus = 205 V).
VSU 125
VOL OFFSET: The Vyprst voltage value currently displayed on the service panel is changed and set as a setting value. (See the conversion table for the electronic VR.)
VRP***


VOL OFFSET: The Vofs voltage value currently displayed on the service panel is changed and set as a Temporary setting value. (See the conversion table for the electronic VR.)
VOF***

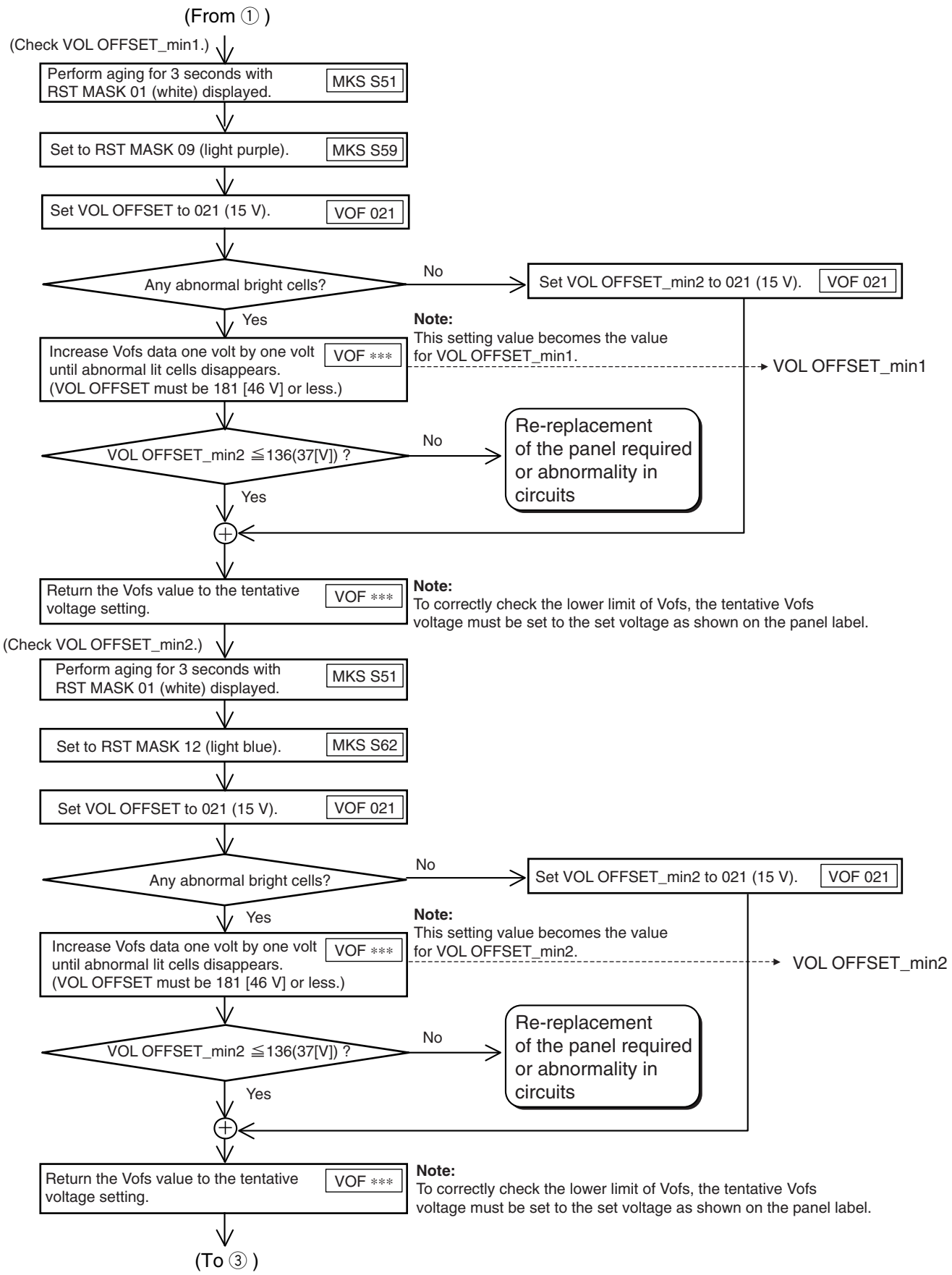
Aging



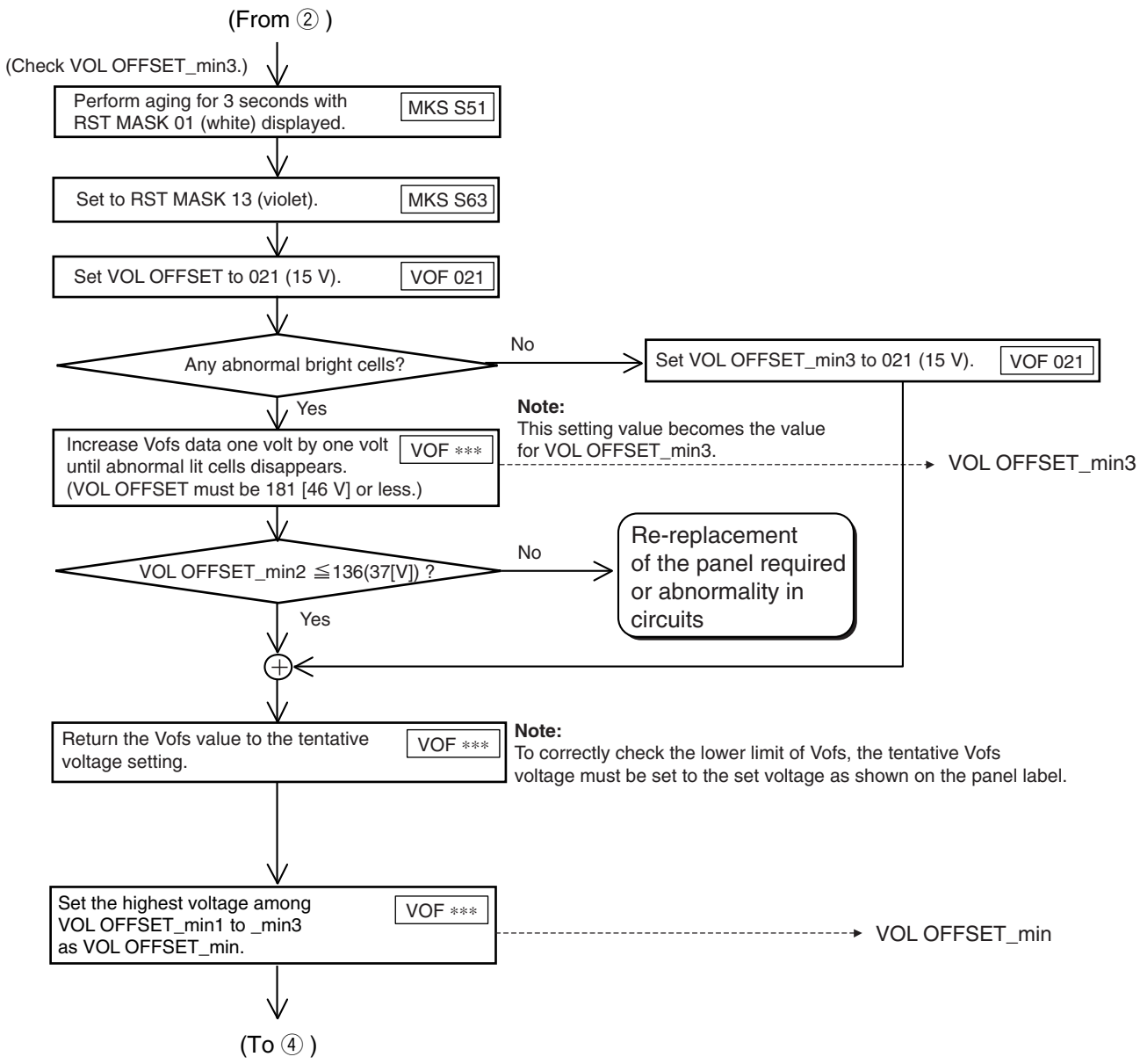
Note:
Be sure not to perform aging for more than 20 minutes.

(To ②)

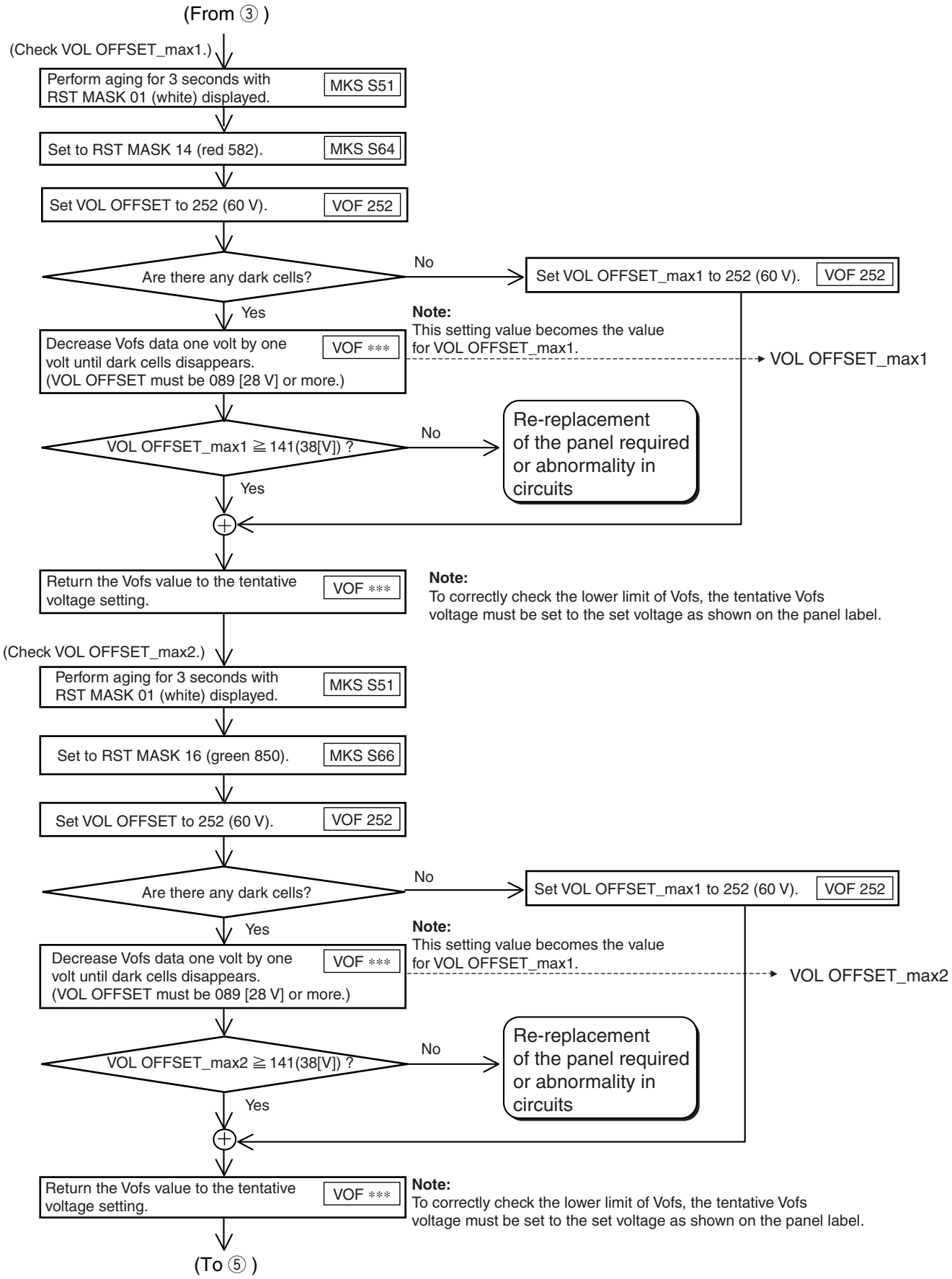
② Actual Vofs adjustment (1)


(From ①)
(Check VOL OFFSET_min1.)
Perform aging for 3 seconds with RST MASK 01 (white) displayed.
MKS S51
Set to RST MASK 09 (light purple).
MKS S59
Set VOL OFFSET to 021 (15 V).
VOF 021
Any abnormal bright cells?
No
Set VOL OFFSET_min2 to 021 (15 V).
VOF 021
Yes
Increase Vofs data one volt by one volt until abnormal lit cells disappears. (VOL OFFSET must be 181 [46 V] or less.)
VOF ***
Note: This setting value becomes the value for VOL OFFSET_min1.
VOL OFFSET_min1
VOL OFFSET_min2 ≦136(37[V]) ?
No
Re-replacement of the panel required or abnormality in circuits
Yes
Return the Vofs value to the tentative voltage setting.
VOF ***
Note: To correctly check the lower limit of Vofs, the tentative Vofs voltage must be set to the set voltage as shown on the panel label.
(Check VOL OFFSET_min2.)
Perform aging for 3 seconds with RST MASK 01 (white) displayed.
MKS S51
Set to RST MASK 12 (light blue).
MKS S62
Set VOL OFFSET to 021 (15 V).
VOF 021
Any abnormal bright cells?
No
Set VOL OFFSET_min2 to 021 (15 V).
VOF 021
Yes
Increase Vofs data one volt by one volt until abnormal lit cells disappears. (VOL OFFSET must be 181 [46 V] or less.)
VOF ***
Note: This setting value becomes the value for VOL OFFSET_min2.
VOL OFFSET_min2
VOL OFFSET_min2 ≦136(37[V]) ?
No
Re-replacement of the panel required or abnormality in circuits
Yes
Return the Vofs value to the tentative voltage setting.
VOF ***
Note: To correctly check the lower limit of Vofs, the tentative Vofs voltage must be set to the set voltage as shown on the panel label.
(To ③)

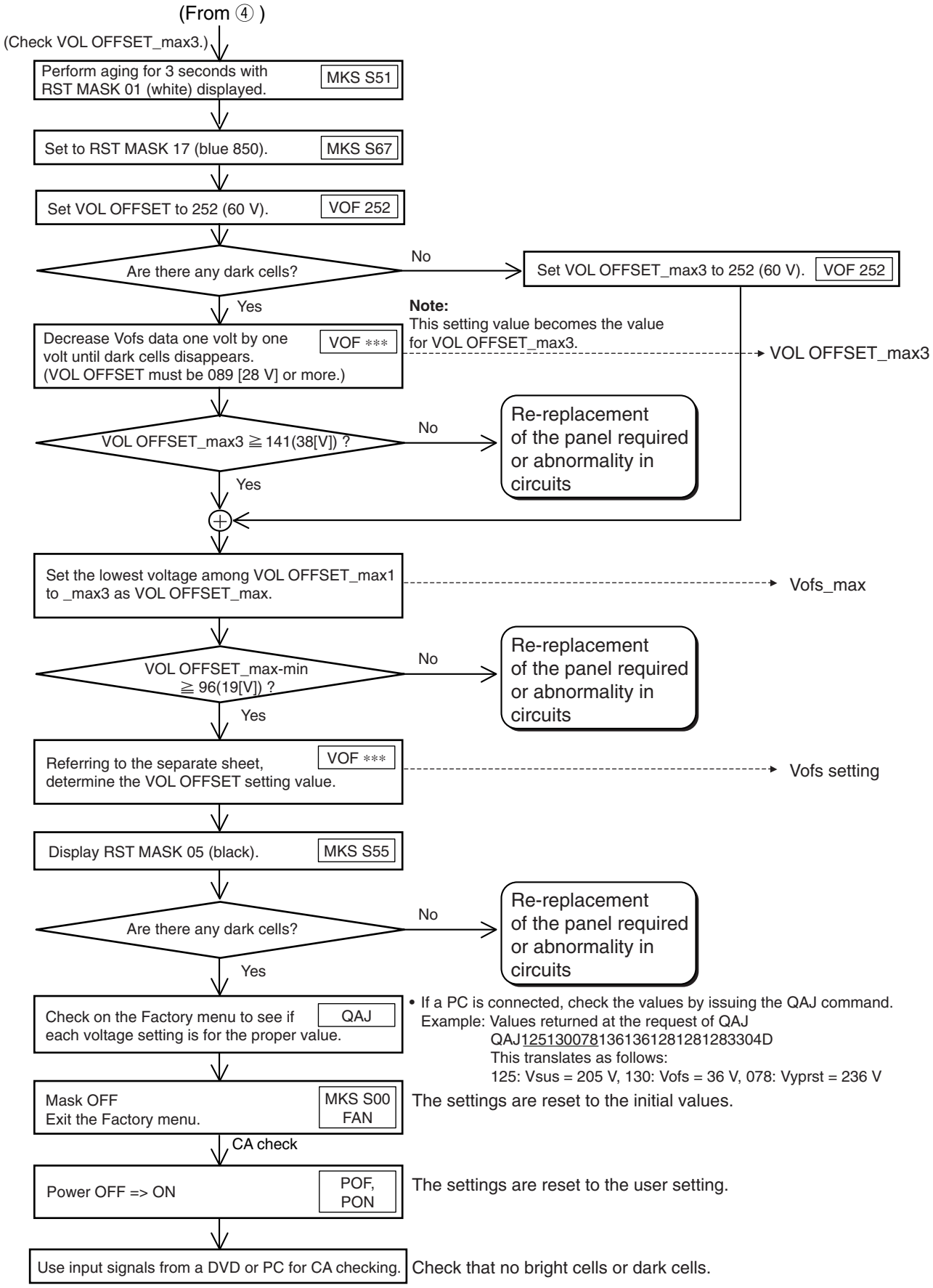
③ Actual Vofs adjustment (2)


(From ②)
(Check VOL OFFSET_min3.)
Perform aging for 3 seconds with RST MASK 01 (white) displayed.
MKS S51
Set to RST MASK 13 (violet).
MKS S63
Set VOL OFFSET to 021 (15 V).
VOF 021
Any abnormal bright cells?
No
Set VOL OFFSET_min3 to 021 (15 V).
VOF 021
Yes
Increase Vofs data one volt by one volt until abnormal lit cells disappears. (VOL OFFSET must be 181 [46 V] or less.)
VOF ***
Note:
This setting value becomes the value for VOL OFFSET_min3.
VOL OFFSET_min3
VOL OFFSET_min2 ≦136(37[V]) ?
No
Re-replacement of the panel required or abnormality in circuits
Yes
Return the Vofs value to the tentative voltage setting.
VOF ***
Note:
To correctly check the lower limit of Vofs, the tentative Vofs voltage must be set to the set voltage as shown on the panel label.
Set the highest voltage among VOL OFFSET_min1 to _min3 as VOL OFFSET_min.
VOF ***
VOL OFFSET_min
(To ④)

④ Actual Vofs adjustment (3)


(From ③)
(Check VOL OFFSET_max1.)
Perform aging for 3 seconds with RST MASK 01 (white) displayed.
MKS S51
Set to RST MASK 14 (red 582).
MKS S64
Set VOL OFFSET to 252 (60 V).
VOF 252
Are there any dark cells?
No
Set VOL OFFSET_max1 to 252 (60 V).
VOF 252
Yes
Decrease Vofs data one volt by one volt until dark cells disappears. (VOL OFFSET must be 089 [28 V] or more.)
VOF ***
Note:
This setting value becomes the value for VOL OFFSET_max1.
VOL OFFSET_max1
VOL OFFSET_max1 ≧ 141(38[V]) ?
No
Re-replacement of the panel required or abnormality in circuits
Yes
Return the Vofs value to the tentative voltage setting.
VOF ***
Note:
To correctly check the lower limit of Vofs, the tentative Vofs voltage must be set to the set voltage as shown on the panel label.
(Check VOL OFFSET_max2.)
Perform aging for 3 seconds with RST MASK 01 (white) displayed.
MKS S51
Set to RST MASK 16 (green 850).
MKS S66
Set VOL OFFSET to 252 (60 V).
VOF 252
Are there any dark cells?
No
Set VOL OFFSET_max1 to 252 (60 V).
VOF 252
Yes
Decrease Vofs data one volt by one volt until dark cells disappears. (VOL OFFSET must be 089 [28 V] or more.)
VOF ***
Note:
This setting value becomes the value for VOL OFFSET_max1.
VOL OFFSET_max2
VOL OFFSET_max2 ≧ 141(38[V]) ?
No
Re-replacement of the panel required or abnormality in circuits
Yes
Return the Vofs value to the tentative voltage setting.
VOF ***
Note:
To correctly check the lower limit of Vofs, the tentative Vofs voltage must be set to the set voltage as shown on the panel label.
(To ⑤)

⑤ Actual Vofs adjustment (4)


(From ④)
(Check VOL OFFSET_max3.)
Perform aging for 3 seconds with RST MASK 01 (white) displayed.
MKS S51
Set to RST MASK 17 (blue 850).
MKS S67
Set VOL OFFSET to 252 (60 V).
VOF 252
Are there any dark cells?
No
Set VOL OFFSET_max3 to 252 (60 V).
VOF 252
Yes
Note:
This setting value becomes the value for VOL OFFSET_max3.
Decrease Vofs data one volt by one volt until dark cells disappears. (VOL OFFSET must be 089 [28 V] or more.)
VOF ***
VOL OFFSET_max3
VOL OFFSET_max3 ≧ 141(38[V]) ?
No
Re-replacement of the panel required or abnormality in circuits
Yes
Set the lowest voltage among VOL OFFSET_max1 to _max3 as VOL OFFSET_max.
Vofs_max
VOL OFFSET_max-min ≧ 96(19[V]) ?
No
Re-replacement of the panel required or abnormality in circuits
Yes
Referring to the separate sheet, determine the VOL OFFSET setting value.
VOF ***
Vofs setting
Display RST MASK 05 (black).
MKS S55
Are there any dark cells?
No
Re-replacement of the panel required or abnormality in circuits
Yes
Check on the Factory menu to see if each voltage setting is for the proper value.
QAJ
• If a PC is connected, check the values by issuing the QAJ command.
Example: Values returned at the request of QAJ
QAJ125130078136136128128283304D
This translates as follows:
125: Vsus = 205 V, 130: Vofs = 36 V, 078: Vyprst = 236 V
Mask OFF
Exit the Factory menu.
MKS S00
FAN
The settings are reset to the initial values.
CA check
Power OFF => ON
POF, PON
The settings are reset to the user setting.
Use input signals from a DVD or PC for CA checking.
Check that no bright cells or dark cells.

Conversion charts for electronic VRs

Vofs (V)	Setting Value (Step)
14	15
15	21
16	26
17	31
18	36
19	42
20	47
21	52
22	58
23	63
24	68
25	73
26	79
27	84
28	89
29	94
30	99
31	104
32	110
33	115
34	120
35	125
36	130
37	136
38	141
39	146
40	151
41	155
42	160
43	165
44	170
45	175
46	180
47	185
48	191
49	196
50	201
51	206
52	211
53	216
54	222
55	227
56	232
57	237
58	242
59	248
60	255

Vprst (V)	Setting Value (Step)
213	3
214	6
215	9
216	12
217	16
218	18
219	21
220	25
221	28
222	31
223	35
224	38
225	41
226	45
227	48
228	51
229	55
230	58
231	62
232	64
233	68
234	71
235	74
236	78
237	81
238	84
239	88
240	91
241	95
242	98
243	101
244	105
245	108
246	112
247	115
248	119
249	121
250	124
251	128
252	131
253	135
254	138
255	141
256	145
257	148
258	152
259	155

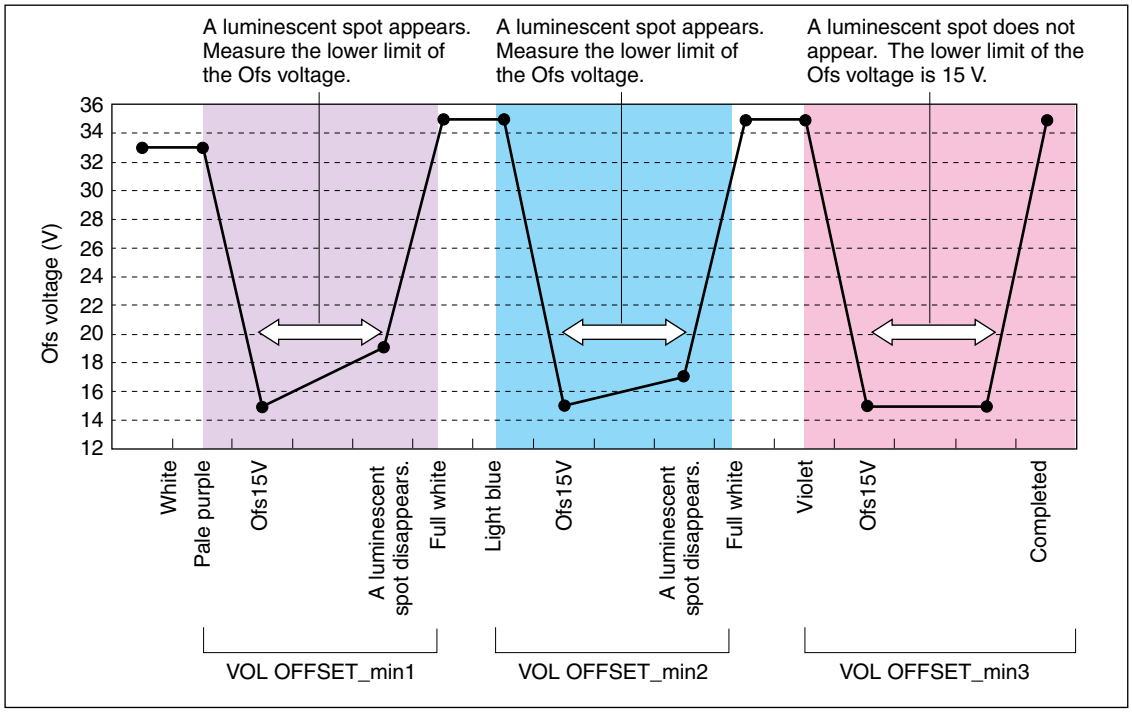
Vprst (V)	Setting Value (Step)
260	158
261	162
262	165
263	168
264	171
265	174
266	177
267	181
268	184
269	188
270	191
271	195
272	198
273	201
274	205
275	208
276	211
277	214
278	217
279	221
280	224

Vofs Setting Values

Vofs lower limit	Vofs upper limit																						
	141	146	151	155	160	165	170	175	180	185	191	196	201	206	211	216	222	227	232	237	242	248	255
21	89	89	89	89	94	94	99	99	104	104	110	110	115	115	120	120	125	125	130	125	130	125	130
26	89	89	89	94	94	99	99	104	104	110	110	115	115	120	120	125	125	125	130	125	130	125	130
31	89	89	94	94	99	99	104	104	110	110	115	115	120	120	125	125	130	125	130	125	130	125	130
36	89	94	94	99	99	104	104	110	110	115	115	120	120	125	125	125	130	125	130	125	130	125	130
42	94	94	99	99	104	104	110	110	115	115	120	120	125	125	130	125	130	125	130	125	130	125	130
47	-	99	99	104	104	110	110	115	115	120	120	125	125	125	130	125	130	125	130	125	130	130	130
52	-	-	104	104	110	110	115	115	120	120	125	125	130	125	130	125	130	125	130	130	130	136	136
58	-	-	-	110	110	115	115	120	120	125	125	125	130	125	130	125	130	130	130	136	136	136	141
63	-	-	-	-	115	115	120	120	125	125	130	125	130	125	130	130	130	136	136	136	141	141	141
68	-	-	-	-	-	120	120	125	125	130	130	125	130	130	130	136	136	136	141	141	141	146	146
73	-	-	-	-	-	-	125	125	130	130	130	130	130	136	136	136	141	141	141	146	146	146	151
79	-	-	-	-	-	-	-	125	130	130	130	136	136	136	141	141	141	146	146	146	151	151	151
84	-	-	-	-	-	-	-	-	130	136	136	136	14	141	141	146	146	146	151	151	151	155	155
89	-	-	-	-	-	-	-	-	-	136	141	141	141	146	146	146	151	151	151	155	155	155	160
94	-	-	-	-	-	-	-	-	-	-	141	146	146	146	151	151	151	155	155	155	160	160	160
99	-	-	-	-	-	-	-	-	-	-	-	146	151	151	151	155	155	155	160	160	160	165	165
104	-	-	-	-	-	-	-	-	-	-	-	-	151	155	155	155	160	160	160	165	165	165	170
110	-	-	-	-	-	-	-	-	-	-	-	-	-	155	160	160	160	165	165	165	170	170	170
115	-	-	-	-	-	-	-	-	-	-	-	-	-	-	160	165	165	165	170	170	170	175	175
120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	165	170	170	170	175	175	175	180
125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	170	175	175	175	180	180	180
130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	175	180	180	180	180	180
136	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	180	180	180	180	180

Transition of the Ofs voltage during adjustment of VOL OFFSET_min

Example:
Initial value of the set Ofs: 33 V
Tentative set value of Ofs (Ofs set value for the panel inspection): 35 V
VOL OFFSET_min1 (pale purpel): 19 V
VOL OFFSET_min2 (light blue): 17 V
VOL OFFSET_min3 (violet): 15 V



• The transition process for VOL OFFSET_max is the same as the above.

7.5 ADJUSTMENTS WHEN THE DRIVE ASSYS ARE REPLACED

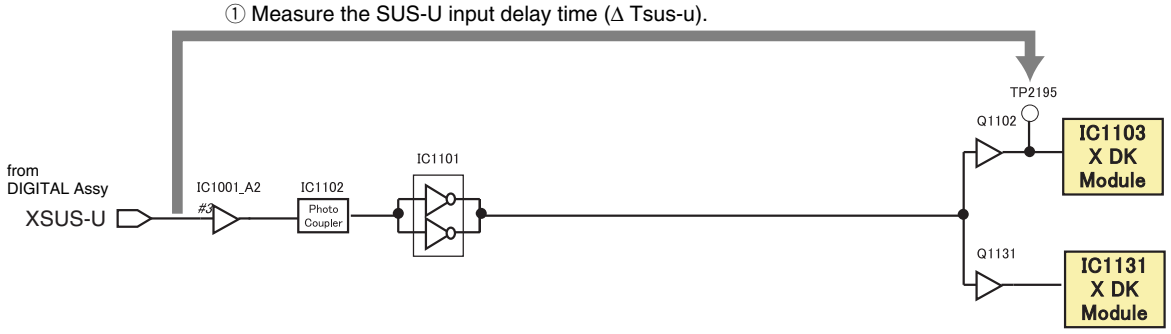
50 FHD X DRIVE Assy

Object parts

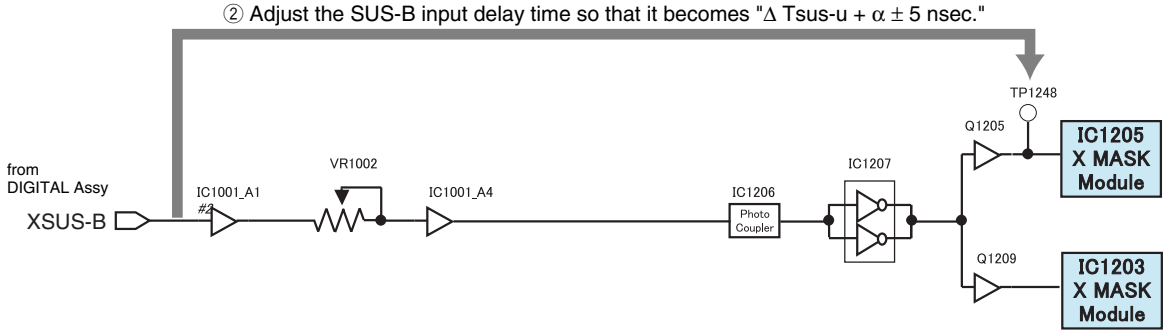
Ref. No.	Part Category	Part No.
IC1206	Photo Coupler	PS9117-TLB
IC1207	FET Driver	TND307TD-TBB
IC1210	FET Driver	TND307TD-TBB

SUS-B ADJUSTMENT

① Measure the SUS-U input delay time (Δ Tsus-u).

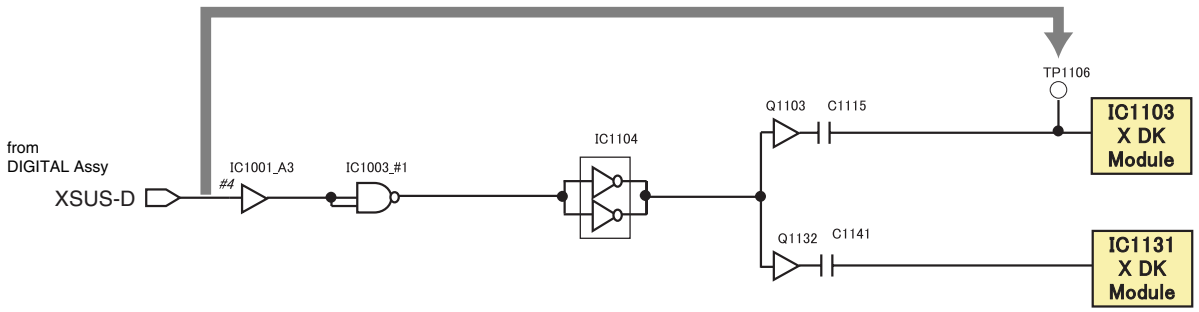


② Adjust the SUS-B input delay time so that it becomes "Δ Tsus-u + α ± 5 nsec."

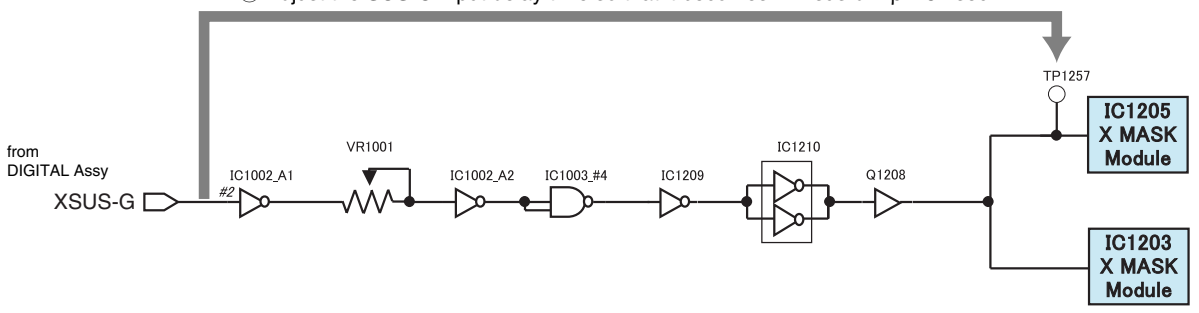


SUS-G ADJUSTMENT

① Measure the SUS-D input delay time (Δ Tsus-d).



② Adjust the SUS-G input delay time so that it becomes "Δ Tsus-d + β ± 5 nsec."



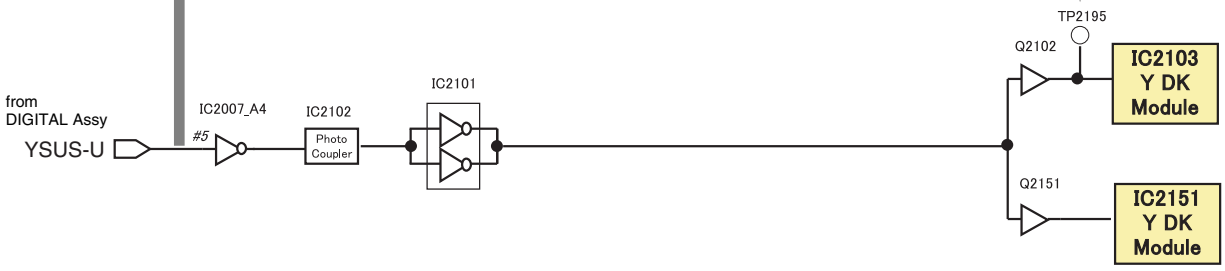
50FHD Y DRIVE Assy

Object parts

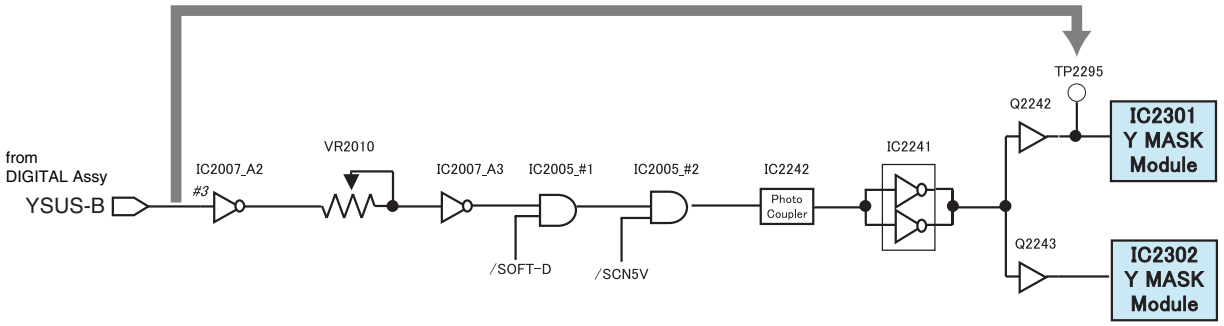
Ref. No.	Part Category	Part No.
IC2242	Photo Coupler	PS9117-TLB
IC2241	FET Driver	TND307TD-TBB
IC2252	FET Driver	TND307TD-TBB

SUS-B ADJUSTMENT

① Measure the SUS-U input delay time (Δ Tsus-u).

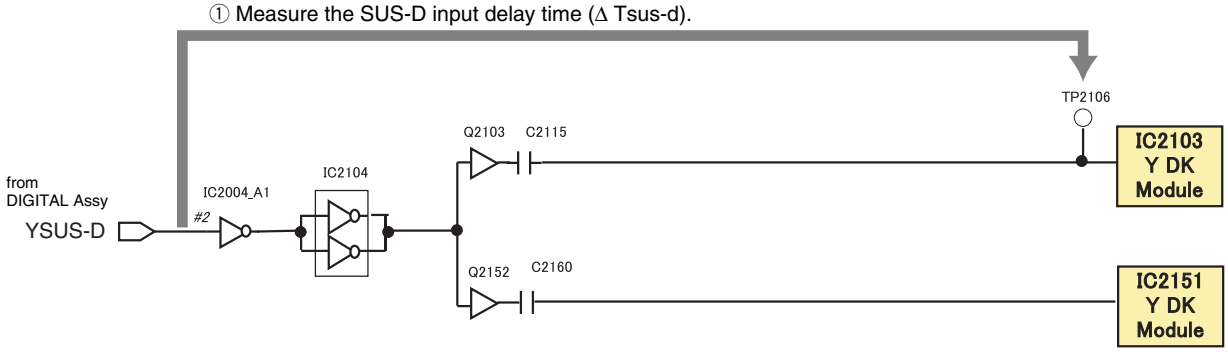


② Adjust the SUS-B input delay time so that it becomes "Δ Tsus-u + α ± 5 nsec."

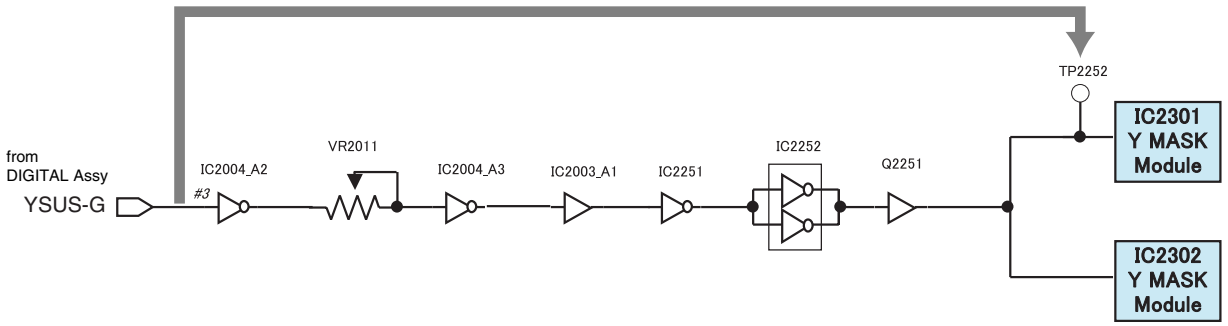


SUS-G ADJUSTMENT

① Measure the SUS-D input delay time (Δ Tsus-d).



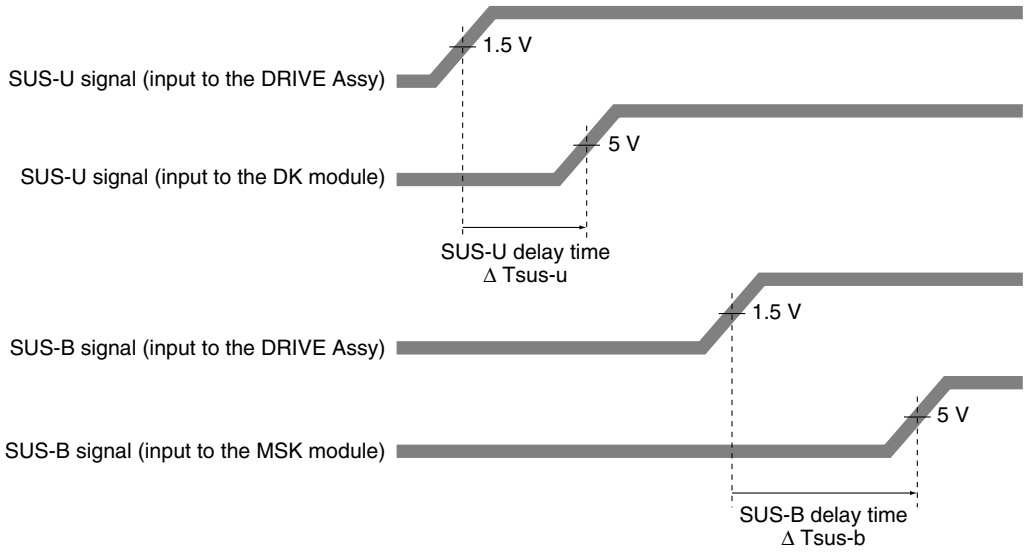
② Adjust the SUS-G input delay time so that it becomes "Δ Tsus-d + β ± 5 nsec."



DELAY ADJUSTMENT OF THE CONTROL SIGNAL (SUS-B)

① Measure the delay time for the SUS-U signal.
② Check the delay time for the SUS-B signal.
Adjust the variable control so that the SUS-B delay time becomes "SUS-U delay time + α ± 5 nsec."

Note: For details on measuring points of waveform, see the figure below.



SUS-B delay time: Δ Tsus-b
Adjust so that "Δ Tsus-b = Δ Tsus-u + α ± 5 nsec," using the variable controls shown in the table below:

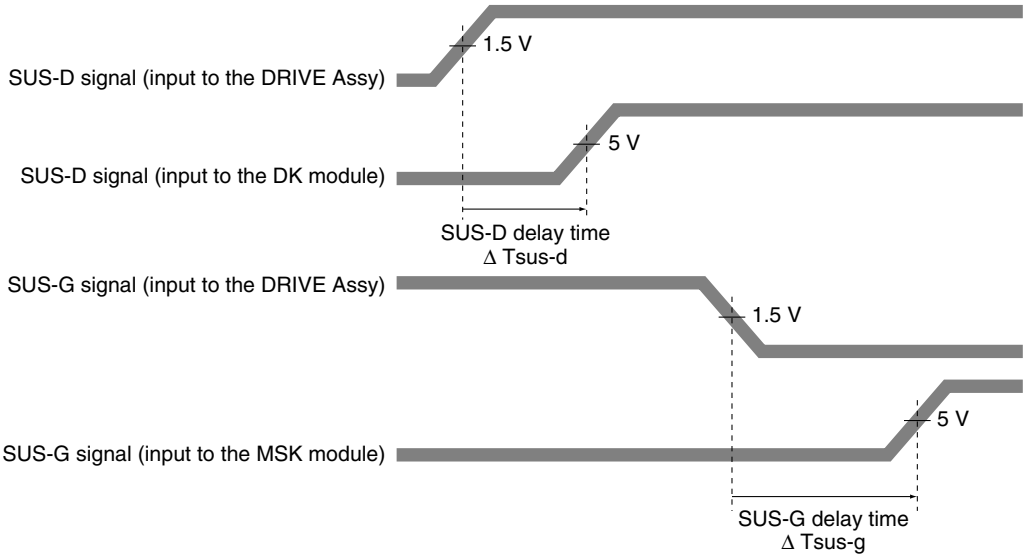
Value of α

Assy	VR	Time
X DRIVE	VR1002	70 nsec
Y DRIVE	VR2010	85 nsec

DELAY ADJUSTMENT OF THE CONTROL SIGNAL (SUS-G)

① Measure the delay time for the SUS-D signal.
② Check the delay time for the SUS-G signal.
Adjust the variable control so that the SUS-G delay time becomes "SUS-D delay time + β ± 5 nsec."

Note: For details on measuring points of waveform, see the figure below.



SUS-G delay time: Δ Tsus-g
Adjust so that "Δ Tsus-g = Δ Tsus-d + β ± 5 nsec," using the variable controls shown in the table below:

Value of β

Assy	VR	Time
X DRIVE	VR1001	120 nsec
Y DRIVE	VR2011	100 nsec

7.6 HOW TO CLEAR VARIOUS LOGS

■ Clearance of various logs after the Assys are replaced

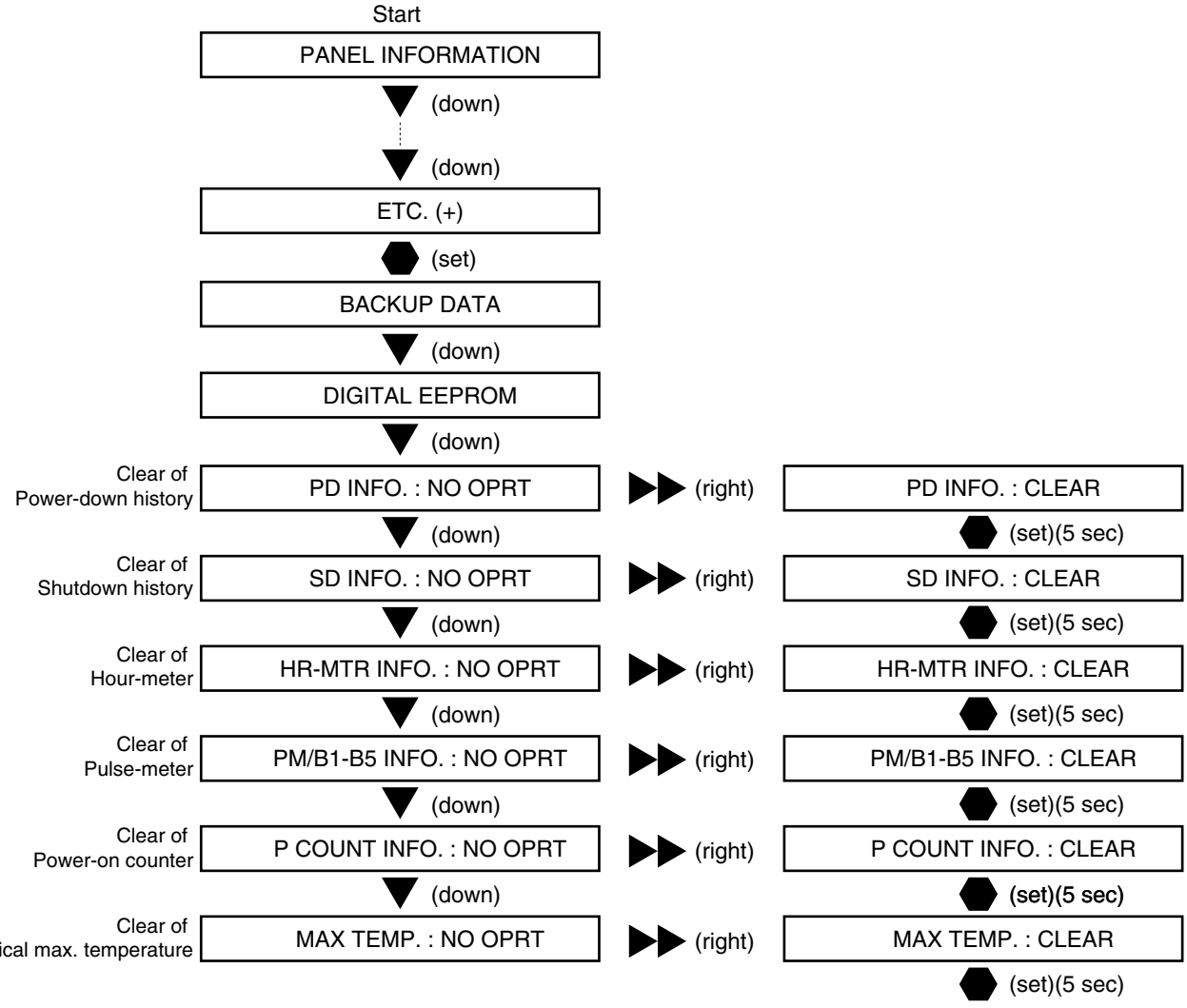
Besides adjustment data, data on accumulated power-on time and logs on defective parts of the product are backed up. Some of those data must be cleared after the Assys are replaced for service.

Clearance of logs, using the RS-232C commands

Item	Content	When the Panel is replaced	When the POWER SUPPLY Unit is replaced	When the Other parts is replaced	RS-232C Commands
Hour-meter	Accumulated power-on time	Must be cleared	No need to be cleared	No need to be cleared	CHM
Shutdown history	Cause of an SD and hour-meter count	Must be cleared	No need to be cleared	No need to be cleared	CSD
Power-down history	Cause of an PD and hour-meter count	Must be cleared	No need to be cleared	No need to be cleared	CPD
Pulse-meter	Accumulated number of pulses emitted (five blocks)	Must be cleared (mandatory)	No need to be cleared	No need to be cleared	CPM
Power-on counter	Relay-on count	No need to be cleared	Must be cleared (mandatory)	No need to be cleared	CPC
MAX_TEMP	Historical max. temperature	Must be cleared	Must be cleared	Must be cleared	CMT

Notes: • As the pulse-meter count is used for each correction function, it must be cleared when an Assy relevant to correction functions is replaced.
• When clearing logs, using the RS-232C commands, first enter Factory mode (by issuing FAY or PFY), then issue the corresponding command.

Clearance of logs, using the Factory menu

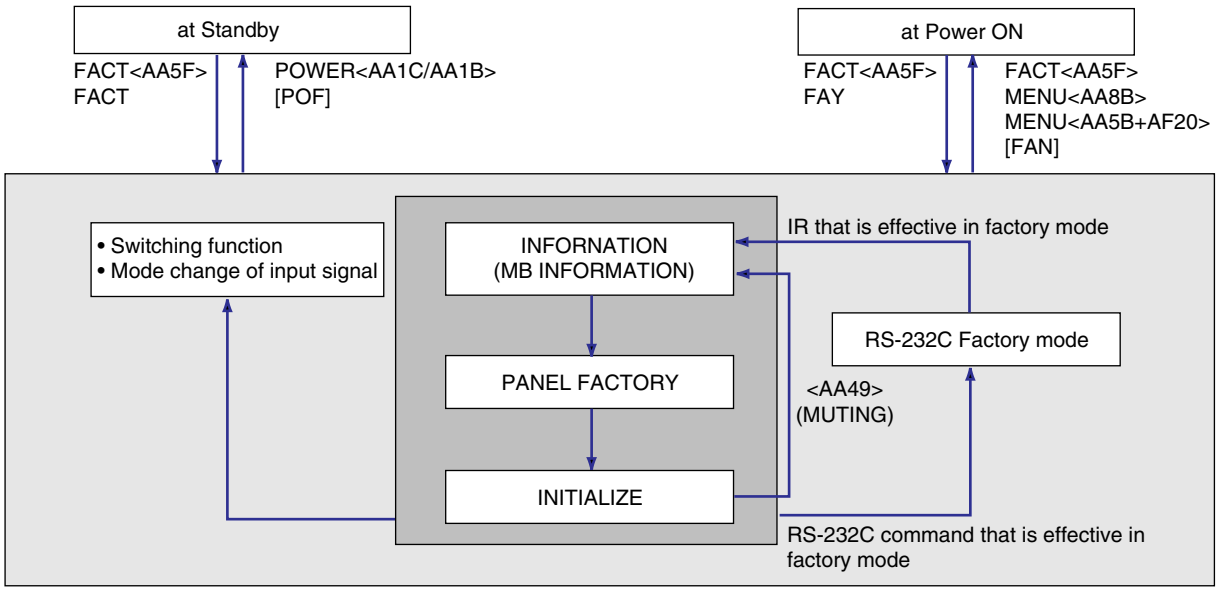


8. SERVICE FACTORY MODE

8.1 SERVICE FACTORY MODE OUTLINE

Operations during Service/Factory mode are described here.

8.1.1 TRANSITION DIAGRAM OF SERVICE FACTORY MODE



8.1.2 HOW TO ENTER/EXIT SERVICE FACTORY MODE

■ How to enter Service Factory mode

By using a remote control unit for servicing:

- Press the FACTORY1 key on the remote control unit for servicing.

By issuing RS-232C commands:

- During normal Standby mode: Issue "PON" then "FAY."
- During normal operation mode: Issue "FAY."

■ How to exit Service Factory mode

By using a remote control unit for servicing:

- Remote control unit for servicing: Press the FACTORY1 key.
- Remote control unit supplied: Press the HOME MENU key.

By issuing RS-232C commands:

- Issue "FAN."

8.1.3 OPERATION OF SERVICE FACTORY MODE

● Functions whose settings are set to OFF

The following functions are set to off when Service Factory mode is entered (including when the FAY command is received).

Table 1. Functions whose settings are set to OFF

Function	Remarks	Function	Remarks
2-screen operation	The main input signal is displayed.	ORBITER	Center-value operation
Mask control	Panel mask		

● User data

User data will be treated as follows:

- User data on picture- and audio-quality adjustments are not reflected, and factory-preset data are output (user data will be retained in memory). When the unit enters Factory mode, the current audio-quality adjustment data will still be retained in memory.
- As to data on various settings, user data will be applied to the items that are associated with signal format change (screen size switching, etc.).
- Data on screen (i.e., screen position; meaning clock dividers, and not including data on screen size) are reset to the default values (data stored in memory will be retained). Screen size will be retained.

8.1.4 REMOTE CONTROL CODE

Table 2. Functions of the keys on the remote control unit while in Service Factory mode

SR Function	Main Function	Remarks
Muting	Switching the main items	Shifting to the next main item (top)
(▲) UP	Switching the sub items	Shifting upward to the next upper layer
(▼) DOWN	Switching the sub items	Shifting downward to the next subtitled item
(◄) LEFT	Decreasing the adjustment value	Decreasing the adjustment value/Modify setting of selections.
(►) RIGHT	Increasing the adjustment value	Increasing the adjustment value/Modify setting of selections.
SET	Switching layers	Shifting downward or upward to the next lower or upper layer/Decision
INPUT	Selecting input	Shifting the input to the next function
INPUT **	Selecting input	Switching the input to (**=1 to 6)
POWER	Power OFF	Turning the power off
FACTORY	Factory OFF	Turning Service Factory mode off (Factory remote control)
MENU	Menu ON	Turning Service Factory mode off and Menu mode on
DRIVE ON/OFF	DRIVE OFF	Turning the Drive mode off (Factory remote control)
VOLUME+	Volume UP.	Increasing 10 the adjustment value. (PANEL FACTORY)
VOLUME-	Volume DOWN.	Increasing 10 the adjustment value. (PANEL FACTORY)

Factory remote control unit

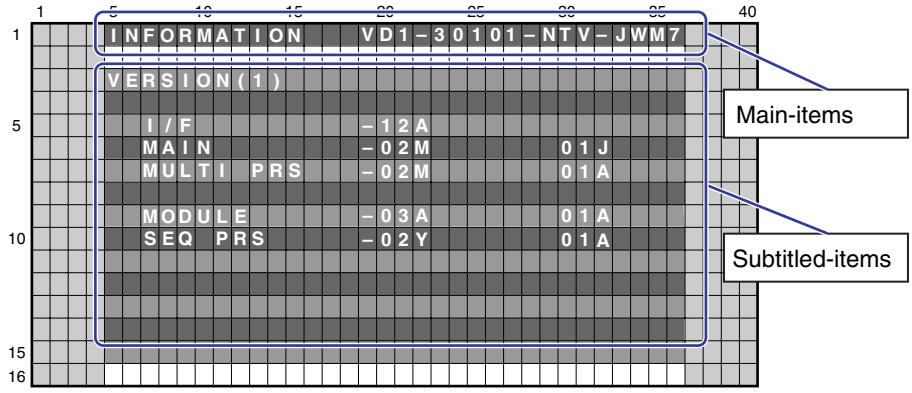
8.1.5 CONFIGURATION OF FACTORY MODE

■ Configuration of Factory Mode

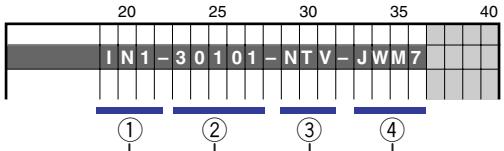
Uppermost Layer Item	Middle Layer Item	Lower Nested Layer Item	Variable / Adjustment Range	Remarks
8.2.1 INFORMATION				
	8.2.1.1 VERSION (1)			
	8.2.1.2 MAIN NG	CLEAR <=>	NO <=> YES	
	8.2.1.3 TEMPERATURE			
	8.2.1.4 HOUR METER			
	8.2.1.5 HDMI SIGNAL INFO 1 and 2			
	8.2.1.6 VDEC SIGNAL INFO			
8.2.2 PANEL FACTORY (+)				
	8.2.2.1 PANEL INFORMATION			
	8.2.2.2 PANEL WORKS			
	8.2.2.3 POWER DOWN			
	8.2.2.4 SHUT DOWN			
	8.2.2.5 PANEL-1 ADJ (+)	X-SUS B <=>	120 to 136	Equivalent to XSB
		Y-SUS B <=>	120 to 136	Equivalent to YSB
		Y-SUSTAIL T1 <=>	120 to 136	Equivalent to YTG
		Y-SUSTAIL T2 <=>	120 to 136	Equivalent to YTB
		Y-SUSTAIL W <=>	120 to 136	Equivalent to YTW
		XY-RST W1 <=>	120 to 136	Equivalent to RSW
		XY-RST W2 <=>	120 to 136	Equivalent to RYW
		VOL SUS <=>	000 to 255	Equivalent to VSU
		VOL OFFSET <=>	000 to 255	Equivalent to VOF
		VOL RST P <=>	000 to 255	Equivalent to VRP
		SUS FREQ. <=>	MODE 1 to MODE 8	Equivalent to SFR
	8.2.2.6 PANEL-2 ADJ (+)	R-HIGH <=>	000 to 511	Equivalent to PRH
		G-HIGH <=>	000 to 511	Equivalent to PGH
		B-HIGH <=>	000 to 511	Equivalent to PBH
		R-LOW <=>	000 to 999	Equivalent to PRL
		G-LOW <=>	000 to 999	Equivalent to PGL
		B-LOW <=>	000 to 999	Equivalent to PBL
		ABL <=>	000 to 255	Equivalent to ABL
	8.2.2.7 PANEL REVISE (+)	R-LEVEL <=>	LV-0 to LV-7	Equivalent to RRL
		G-LEVEL <=>	LV-0 to LV-7	Equivalent to RGL
		B-LEVEL <=>	LV-0 to LV-7	Equivalent to RBL
	8.2.2.8 ETC. (+)	BACKUP DATA <=>	NO OPRT <=> TRANSFER or ERR	Equivalent to BCP
		DIGITAL EEPROM <=>	NO OPRT <=> DELETE/REPAIR	Equivalent to FAJ/UAJ
		PD INFO. <=>	NO OPRT <=> CLEAR	Equivalent to CPD
		SD INFO. <=>	NO OPRT <=> CLEAR	Equivalent to CSD
		HR-MTR INFO. <=>	NO OPRT <=> CLEAR	Equivalent to CHM
		PM/B1-B5 <=>	NO OPRT <=> CLEAR	Equivalent to CPM
		P COUNT INFO. <=>	NO OPRT <=> CLEAR	Equivalent to CPC
		MAX TEMP. <=>	NO OPRT <=> CLEAR	Equivalent to CMT
	8.2.2.9 RASTER MASK SETUP (+)	MASK OFF	<=> 48V <=> 50V <=> 60V <=> 60P <=> 70P <=> 72P <=> 75V <=>	Equivalent to MKS+S00
		RST MASK 01 <=>		Equivalent to MKS+S51
		• • •		• • •
		RST MASK 24 <=>		Equivalent to MKS+S74
	8.2.2.10 PATTEN MASK SETUP (+)	MASK OFF	<=> 48V <=> 50V <=> 60V <=> 60P <=> 70P <=> 72P <=> 75V <=>	Equivalent to MKS+S00
		PTN MASK 01 <=>		Equivalent to MKS+S01
		• • •		• • •
		PTN MASK 39 <=>		Equivalent to MKS+S10
	8.2.2.11 COMBI MASK SETUP (+)	MASK OFF	<=> 48V <=> 50V <=> 60V <=> 60P <=> 70P <=> 72P <=> 75V <=>	Equivalent to MKC+S00
		CMB MASK 01 <=>		Equivalent to MKC+S01
		• • •		• • •
		CMB MASK 10 <=>		Equivalent to MKC+S10
8.2.3 INITIALIZE				
	8.2.3.1 SYNC DET (+)			for the technical use
	8.2.3.2 SG MODE		SG OFF <=> • • •	
	8.2.3.3 SG PATTERN		SG PATTERN <=> COLOR BAR 1 • • •	
	8.2.3.4 SIDE MASK LEVEL (+)	R MASK LEVEL <=>	000 to 255	Not available. Changing of the SIDE MASK LEVEL is possible in Integrator mode.
		G MASK LEVEL <=>	000 to 255	
		B MASK LEVEL <=>	000 to 255	
	8.2.3.5 FINAL SETUP (+)	DATA RESET <=>	OFF <=> JP ON <=> US ON <=> EU ON	
	8.2.3.6 HDMI INTR POSITION (+)	INTR-POS1 (0x75) <=>	001	for the technical use

8.1.6 INDICATION (OSD) OF SERVICE FACTORY MODE

• With the 6th- and 7th-generation models, the OSD indication in Factory mode is in white on a green background.



■ Main-item indications



① Input function

Input Functions	On-Screen Display
INPUT 1- 6	IP1 - 6

② Input signal mode and screen size

Note: See SIG-Mode Tables. (See next page.)

③ Color system and signal type

Input Signal Type	Color System	On-Screen Display
Composite input	NTSC	NTV
	PAL	PLV
	PAL M	PMV
	PAL N	PNV
	SECAM	SCV
	4.43 NTSC	4NV
	BLACK/WHITE	BWV
S terminal input	NTSC	NTS
	PAL	PLS
	PAL M	PMS
	PAL N	PNS
	SECAM	SCS
	4.43 NTSC	4NS
	BLACK/WHITE	BWS
Y/Cb/Cr Input		CBR
Y/Pb/Pr Input		PBR
RGB Input		RGB
Digital Input		DIG

④ Destination

Destination	On-Screen Display
FullHD monitor (for Japan)	JWM7*
FullHD monitor (for North America)	AWM7*
FullHD monitor (for Europe)	EWM7*
7th-generation model	***7

● Input signal-Mode Table

1st and 2nd charecters : Resolutin of the input signal (numerics for the video signals, and alphabetics for the PC signals)
3rd and 4th charecters : Refresh rate of the input signal
5th charecter : Selection of the screen size

Input signal mode table for video signals (resolutions and V frequencies)

1st and 2nd	3rd and 4th	Signal Type	Fv (Hz)	Fh (kHz)
10	50	SDTV*625i	50.000	15.625
20	50	SDTV*625p	50.000	31.250
30	50	HDTV*1125i	50.000	28.125
40	50	HDTV*750p	50.000	37.500
10	60	SDTV*525i	60.000	15.734
20	60	SDTV*525p	60.000	31.469
30	60	HDTV*1125i	60.000	33.750
40	60	HDTV*750p	60.000	45.000
50	24	HDTV*1125p	24.000	27.000
50	50	HDTV*1125p	50.000	56.25
50	60	HDTV*1125p	60.000	67.5

Fv: Vertical Frequency, Fh: Horizontal Frequency

Input signal mode table for PC signals (resolutions and V frequencies)

1st and 2nd	3rd and 4th	Signal Type	Fv (Hz)	Fh (kHz)
C1	70	720 x 400	70.08	31.46
C2	60	640 x 480	60.00	31.50
	72		72.80	37.90
	75		75.00	37.50
C4	56	800 x 600	56.00	35.20
	60		60.00	37.90
	72		72.00	48.10
	75		75.00	46.90
C6	60	1280 x 720	60.00	44.70
C7	60	1024 x 768	60.00	48.40
	70		70.00	56.50
	75		75.00	60.00
C8	56	1280 x 768	56.25	45.10
	60		59.87	47.80
	70		69.84	56.10
D1	75	1152 x 864	75.00	67.50
D4	60	1600 x 900	59.8	55.93
D5	60	1280 x 960	60.00	60.00
D6	60	1280 x 1024	60.02	63.981
	75		75.025	79.976
D7	60	1400 x 1050	59.978	65.317
	75		74.867	82.278
D8	60	11680 x 1050	59.954	65.29
D9	60	1920 x 1080	60	67.5
E0	60	1600 x 1200	60	75
E1	60	1920 x 1200	59.95	74.038

Fv: Vertical Frequency, Fh: Horizontal Frequency

Current selection of the screen size

5th	Description on GUI	VIDEO	PC	Remarks
0	DOT BY DOT	●	●	
1	4:3	●	●	
2	FULL (FULL1)	●	●	
3	ZOOM	●	–	
4	CINEMA	●	–	
5	WIDE	●	–	
6	FULL 14:9	●	–	
7	CINEMA 14:9	●	–	
8	FULL2	●	–	For Japan only

●: available, –: not available

8.2 FACTORY MENU

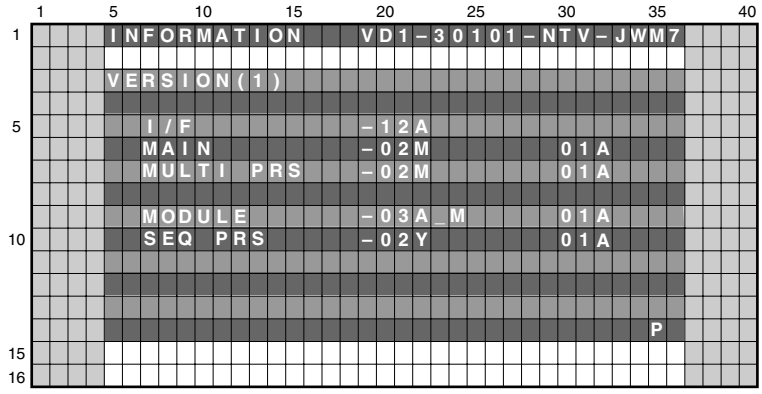
● **Operation items**

No.	Display Item	Content	RS-232C Command
1	VERSION (1)	The software version for each flash memory is displayed.	QS1
2	MAIN NG	The data on a shutdown generated in the Main side and its time are displayed.	QNG, CNG
3	TEMPERATURE	The current temperature and the rotation status of the fan are displayed.	QMT
4	HOUR METER	The HOUR METER/P-COUNT information are displayed.	–
5	HDMI SIGNAL INFO 1	The data on the Status Register of the HDMI Receiver are displayed in hexadecimal notation.	–
6	HDMI SIGNAL INFO 2		
7	VDEC SIGNAL INFO	Display the Signal Information on VDEC.	–

8.2.1 INFORMATION

8.2.1.1 VERSION (1)

The software versions for each microcomputer is displayed.



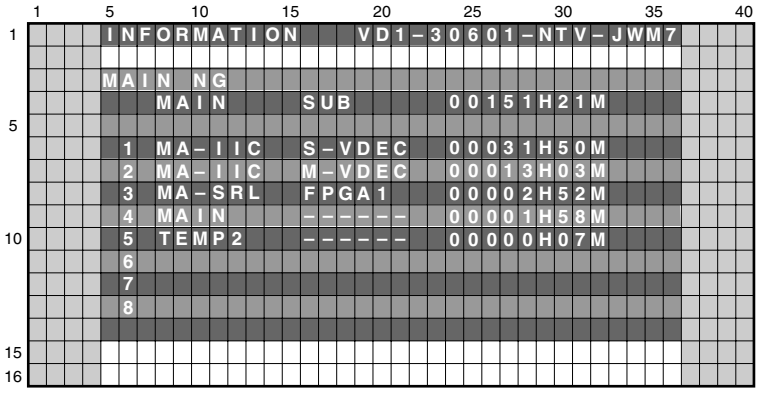
Screen: VERSION (1)

Microcomputer	On-Screen Display	Display Example (Execution program block)	Display Example (Boot block)
I/F microcomputer	I/F	-12A	–
Main microcomputer	MAIN	-02M	01A
Multiprocessor program	MULTI PRS	-02M	01A
Module microcomputer	MODULE	-03A_M	01A
Sequence processor program	SEQ PRS	-02Y	01A

Note: MULTI PRS stands for MULTI PROCESSOR and SEQ PRS stands for SEQUENCE PROCESSOR.
29 to 32 rows: Boot version of each device is displayed.
19 to 24 rows: The version of the execution program is displayed.

8.2.1.2 MAIN NG

SHUTDOWN information that is detected by the Main microcomputer is displayed.

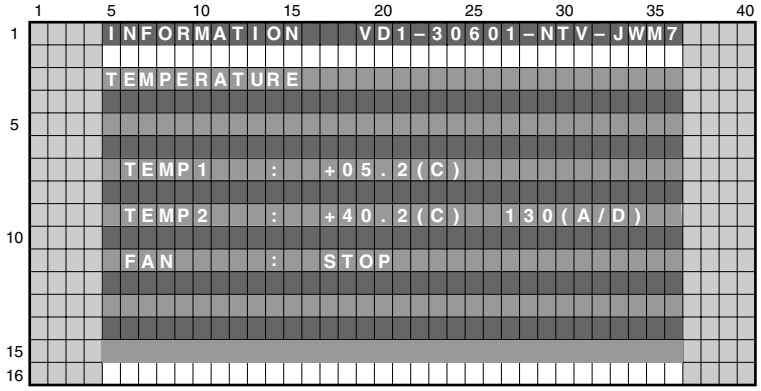


Screen: MAIN NG

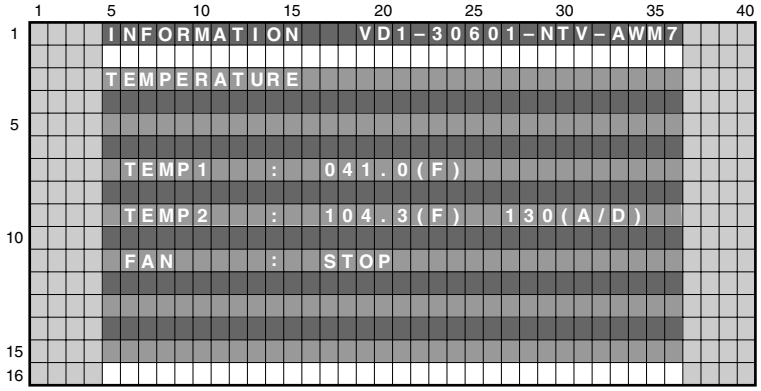
OSD: MAIN	OSD: SUB	Cause of Shutdown
AUDIO	----	Speaker short-circuit
MODULE	----	Abnormality in Module microcomputer communication
MA-SRL		Abnormality in 3-wire Serial Communication of the Main microcomputer.
	IF	Communication failure of IF microcomputer
	MULTI1	Multiprocessor communication failure (MULIT1)
	IP	Multiprocessor I/P processor communication failure
	D-SEL	Digital selector communication failure
	SLAVE	Communication failure between master Multiprocessor and SLAVE Multiprocessor
	FPGA1	Communication failure between MAIN and FPGA
	FPGA2	Communication failure between Multiprocessor and FPGA
MA-IIC		Abnormality in Main microcomputer IIC communication
	AV-SW	AV Switch
	RGB-SW	RGB Switch
	M-VDEC	Main VDEC
	S-VDEC	SUB VDEC
	ADC	AD/PLL
	HDMI	HDMI
	MA-EEP	64K EEPROM
	DVI	DVI receiver
	AUD-SW	Audio SW
	VOLUME	VOLUME IC
MAIN	----	Communication failure between IF and Main microcomputer & UNKNOWN
FAN	----	Fan stopped
TEMP2	----	High temperature of the unit.
POWER		Abnormality in the power
	M-DCDC	Abnormality in the ASIC power (DC-DC)

8.2.1.3 TEMPERATURE

The current temperature and fan rotation state are displayed.



Screen: TEMPERATURE (For Japan and Europe)



Screen: TEMPERATURE (For North America)

• Display

Temperature indications

TEMP1: The temperature of the sensor in the panel is indicated in Celsius (models for Japan and Europe) or in Fahrenheit (models for North America).

TEMP2: The A/D input value at Pin 76 (AN0) of the main microcomputer is converted to the temperature value and indicated in Celsius (models for Japan and Europe) or in Fahrenheit (models for North America). The 10-bit A/D value is also indicated. (**Note:** A shutdown process starts when the sensor temperature exceeds the specified maximum [C].)

Fan output indication

One of the following indications is displayed:

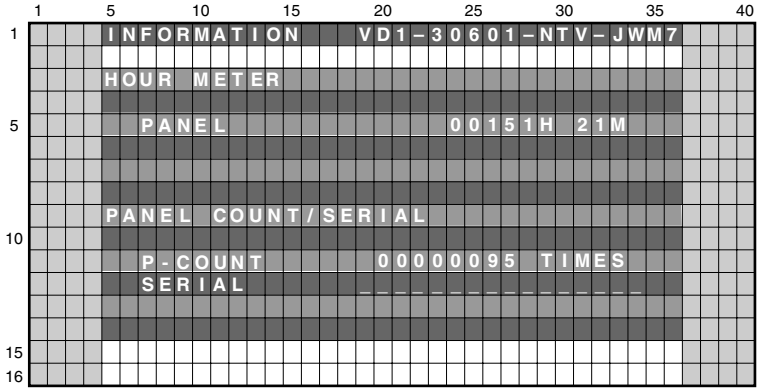
STOP : The fan stops.
LOW : The fan rotates at a low speed.
MIDDLE : The fan rotates at a medium speed.
HIGH : The fan rotates at a high speed.

Note: According to where and how the unit is installed, there may be a difference between the measured sensor temperature and the ambient temperature. Also, the quality of the sensor varies within tolerable limits from product to product. So use the sensor temperature only as a guide.

Note: Press the [⬆] and [⬇] keys to update the temperature because the sensor temperature is not automatically updated.

8.2.1.4 HOUR METER

HOUR METER and P-COUNT informations are displayed.



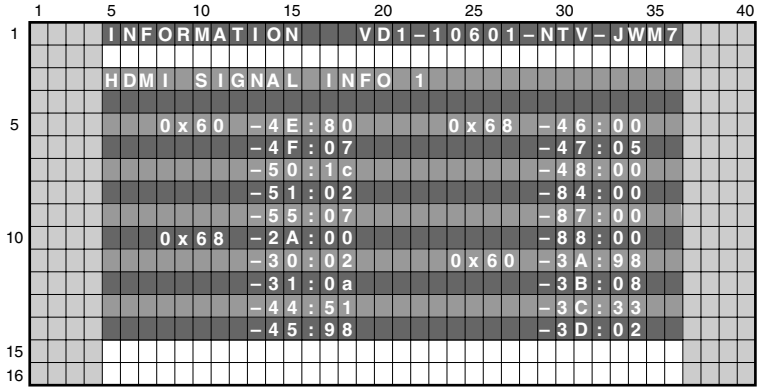
Screen: HOUR METER

Meaning	On-screen Display	Display Example	RS-232C Command
HOUR METER (PANEL-side)	PANEL	00151H 21M	QIP
POWER ON COUNTER	P-COUNT	00000095 TIMES	QIP
SYSTEM SERIAL	SERIAL		QIP

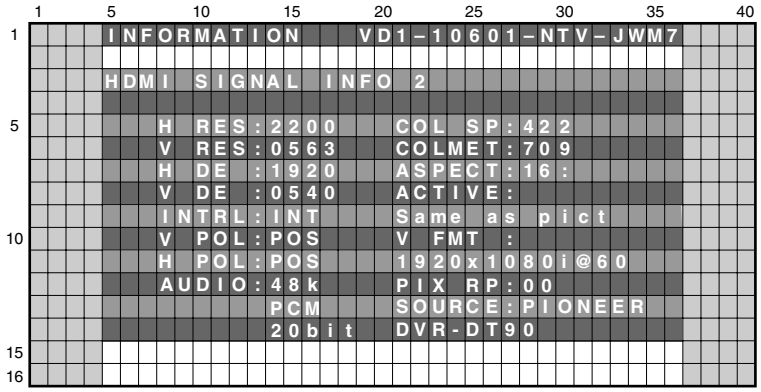
Note 1: SERIAL (serial number of the system) is indicated only for FHD panels.
Note 2: The data on the Hour Meter and P-Count for the panel are obtained from the panel.

8.2.1.5 HDMI SIGNAL INFO 1

Signal information that was input to HDMI is displayed.



Screen: HDMI SIGNAL INFO 1



Screen: HDMI SIGNAL INFO 2

HDMI SIGNAL INFO 1

Device	SA	Content
0×60	4Eh	Status register
	4Fh	Signal distinction result 1
	50h	Signal distinction result 2
	51h	Flag detection output
	55h	Noise level detection 1
0×68	2Ah	Audio information: PCM/non PCM, existence of copyright protection, etc.
	30h	Audio information: Sampling frequency
	31h	Audio information: The number of quantization bit
	44h	Video information: Color space
	45h	Video information: Aspect ratio
	46h	Video information: Scaling
	47h	Video information: Video format
	48h	Video information: Pixel count
	84h	Audio information: Channel count
	87h	Audio information: Speaker allocation
	88h	Audio information: Downmix inhibit flag
0×60	3Ah	Video information: Valid horizontal pixel number (lower bit)
	3Bh	Video information: Valid horizontal pixel number (upper bit)
	3Ch	Video information: Valid vertical lines (lower bit)
	3Dh	Video information: Valid vertical lines (upper bit)

HDMI SIGNAL INFO 2

Display Item	Display Example
H RES	Horizontal pixel number (decimal numeral)
V RES	Vertical lines (decimal numeral)
H DE	Valid horizontal pixel number (decimal numeral)
V DE	Valid vertical lines (decimal numeral)
INTRL	Interlace or progressive
V POL	VSYNC polarity
H POL	HSYNC polarity
AUDIO (first line)	Sampling frequency
AUDIO (second line)	Audio format
AUDIO (third line)	Quantization bit
COL SP	Color space (AVI Info)
COLMET	Color metry (AVI Info)
ASPECT	Aspect ratio (AVI Info)
ACTIVE	Active format (AVI Info)
V FMT	Video format (AVI Info)
PIX RP	Pixel count
SOURCE (first line)	Vendor name of the emission device
SOURCE (second line)	Model name of the emission device

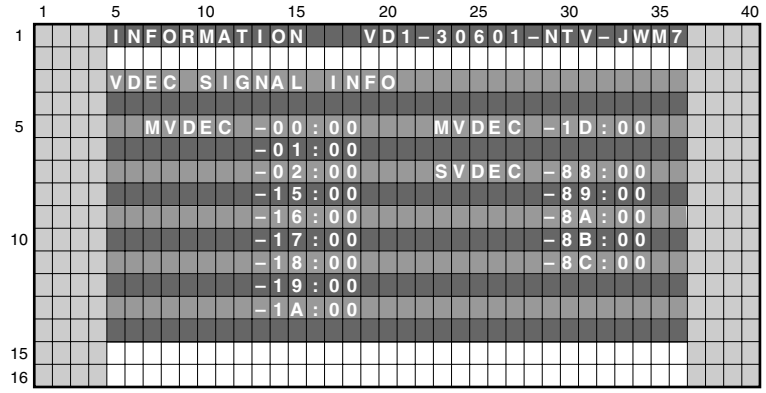
Correspondence of display and resolution of HDMI FACTORY

When the screen is not displayed, confirm the five following items.

Input Signal	Display of FACTORY				
	H RES	V RES	H DE	V DE	V FMT
480i (525i)	858	262 or 263	720	240	720x480i @ 60
480p (525p)	858	525	720	480	720x480p @60
1080i (1125i)	2200	562 or 563	1920	540	1920x1080i @ 60
720p (750p)	1650	750	1280	720	1280x720p @ 60

8.2.1.6 VDEC SIGNAL INFO

Signal state that is input to VDEC is displayed.



Screen: VDEC SIGNAL INFO

Device	SA	Content
MVDEC	00h	Signal distinction result 1
	01h	Signal distinction result 2
	02h	Flag detection output
	15h	Noise level detection 1
	16h	Noise level detection 2
	17h	Non-standard decision output
	18h	Subcarrier signal detection
	19h	ACC data output
	1Ah	ACC processing information output
	1Dh	Input mode setting
SVDEC	88h	Status register 1 (TV/VCR status)
	89h	Status register 2 (Macrovision detection, etc.)
	8Ah	Status register 3 (Front-end AGC gain value)
	8Bh	Status register 4 (Subcarrier to horizontal (SCH) phase)
	8Ch	Status register 5 (Signal distinction result)

8.2.2 PANEL FACTORY (+)

The factory menu section of the panel side is displayed.

● **Operation items**

No.	Display Item	Content	RS-232C Command
1	PANEL INFORMATION	The software version and backup status of the DIGITAL Assy are displayed.	QST
2	PANEL WORKS	The counts of the Pulse Meter and Hour Meter are indicated.	QIP
3	POWER DOWN	The power-down history is indicated.	QPD
4	SHUT DOWN	The shutdown history, as detected by the Module Microcomputer, is displayed.	QSD
5	PANEL-1 ADJ (+)	The SUS waveform and drive power can be adjusted.	–
6	PANEL-2 ADJ (+)	The panel white balance and ABL can be adjusted.	–
7	PANEL REVISE (+)	The panel degradation correction level can be set.	–
8	ETC (+)	Copying of backup data and clearance of various data can be done.	–
9	RASTER MASK SETUP (+)	The mask screen (PASTER) is displayed.	MKS
10	PATTEN MASK SETUP (+)	The mask screen (PATTERN) is displayed.	MKS
11	COMBI MASK SETUP (+)	The mask screen (COMBI) is displayed.	MKC

■ Panel Factory Function

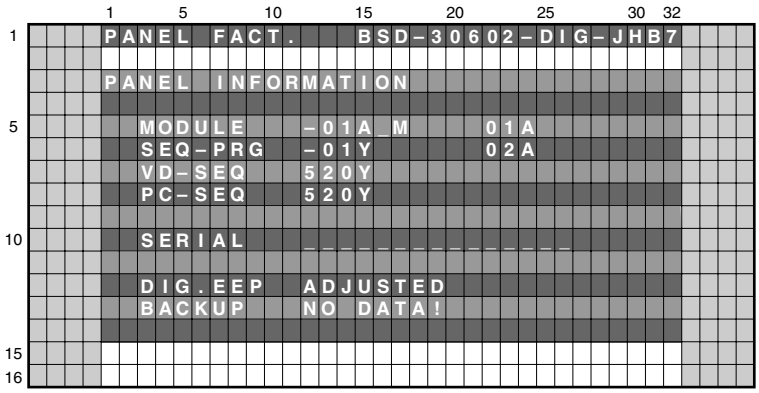
Displays the Factory menu, which enables adjustment of the panel via the screen display.

1. Character display area

- **Mask indication during Panel Factory mode**
  If the Mask indication is set during Panel Factory mode, the GUI indication is displayed for 1 second at one layer of the panel factory menu, followed by switching to the mask and drive sequence that have been set. For details on the communication format with the main microcomputer.

8.2.2.1 PANEL INFORMATION

- Data on the microcomputer version of the panel, product serial number, and the status of memory for adjustment data of the unit and for backup are sent back.



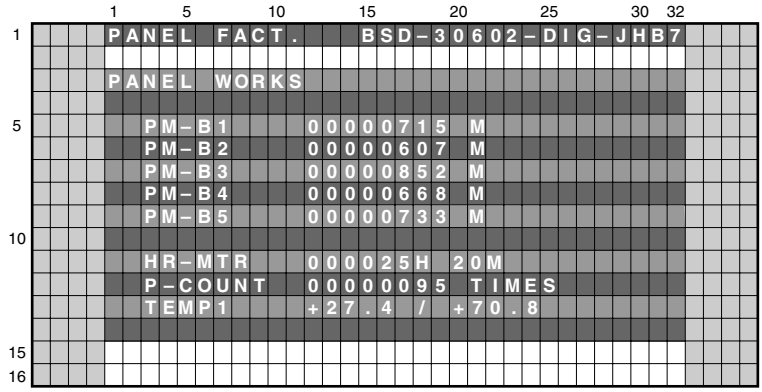
No other layers are nested below this layer. There is no adjustment item.

■ Key operation

<DOWN> : Shifting to PANEL WORKS
<UP> : Shifting to COMBI MASK SETUP (+)
<L/R> : Updating displayed information

8.2.2.2 PANEL WORKS

- Data on operations, such as the accumulated pulse-meter counts, hour-meter count, power-on count, and temperature detected by the sensor, are sent back. No other layers are nested below this layer.



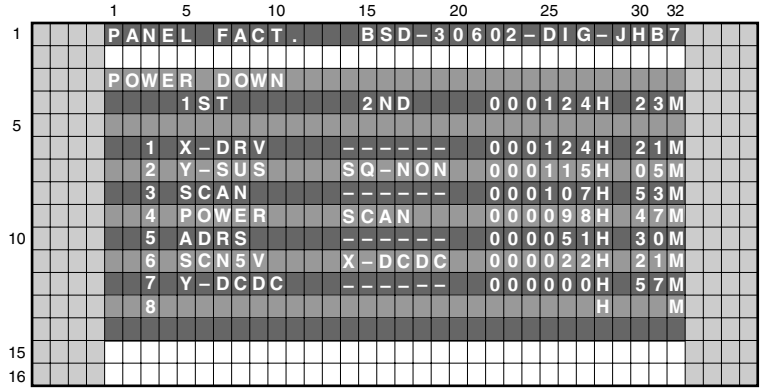
■ Key operation

<DOWN> : Shifting to POWER DOWN
<UP> : Shifting to PANEL INFORMATION
<L/R> : Updating displayed information

- No other layers are nested below this layer. There is no adjustment item.
- PM-B1 to B5: Pulse-meter counts for the 5 blocks on the screen.
- TEMP1: The current panel temperature and the historical maximum temperature recorded in memory are indicated. The range of temperature indication is from -50.0 to +99.9.

8.2.2.3 POWER-DOWN

• The power-down history is sent back.
Up to 8 log items with the accumulated power-on time upon generation were also indicated.


PANEL FACT. BSD-30602-DIG-JHB7
POWER DOWN
1ST 2ND 000124H 23M
1 X-DRV ------ 000124H 21M
2 Y-SUS SQ-NON 000115H 05M
3 SCAN ------ 000107H 53M
4 POWER SCAN 000098H 47M
5 ADRS ------ 000051H 30M
6 SCN5V X-DCDC 000022H 21M
7 Y-DCDC ------ 000000H 57M
8 H M

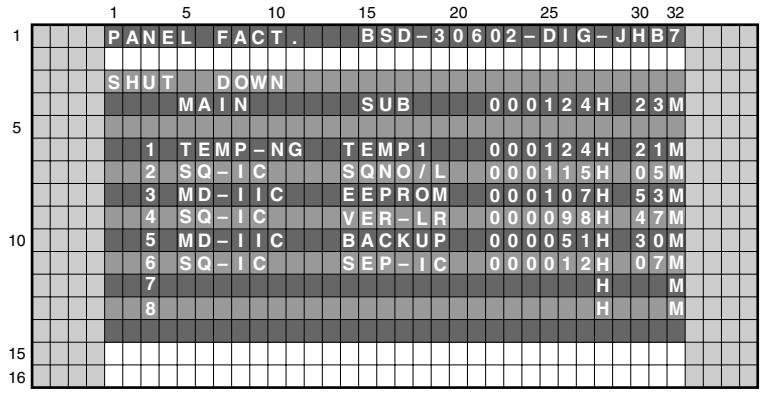
■ Key operation

<DOWN> : Shifting to SHUT DOWN
<UP> : Shifting to PANEL WORKS
<L/R> : Updating displayed information

• No other layers are nested below this layer. There is no adjustment item.
• When a power-down is generated, the power-down point is indicated in the column labeled 1ST and the most likely next power-down point is indicated in the column labeled 2ND.
• A log for the same power-down point or with the same accumulated power-on time upon generation is not recorded.

8.2.2.4 SHUT DOWN

• The history of shutdowns generated in the FHD DIGITAL Assy is displayed.
Up to 8 log items with the accumulated power-on time upon generation were also indicated.


PANEL FACT. BSD-30602-DIG-JHB7
SHUT DOWN
MAIN SUB 000124H 23M
1 TEMP-NG TEMP1 000124H 21M
2 SQ-IC SQNO/L 000115H 05M
3 MD-IIC EEPROM 000107H 53M
4 SQ-IC VER-LR 000098H 47M
5 MD-IIC BACKUP 000051H 30M
6 SQ-IC SEP-IC 000012H 07M
7 H M
8 H M

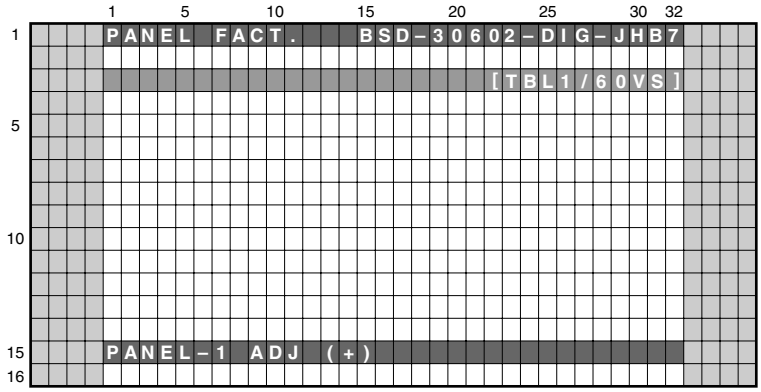
■ Key operation

<DOWN> : Shifting to PANEL-1 ADJ (+)
<UP> : Shifting to POWER DOWN
<L/R> : Updating displayed information

• No other layers are nested below this layer. There is no adjustment item.
• When a shutdown is generated, if data on defective places are available, they are indicated in the column labeled SUB.

8.2.2.5 PANEL-1 ADJ (+)

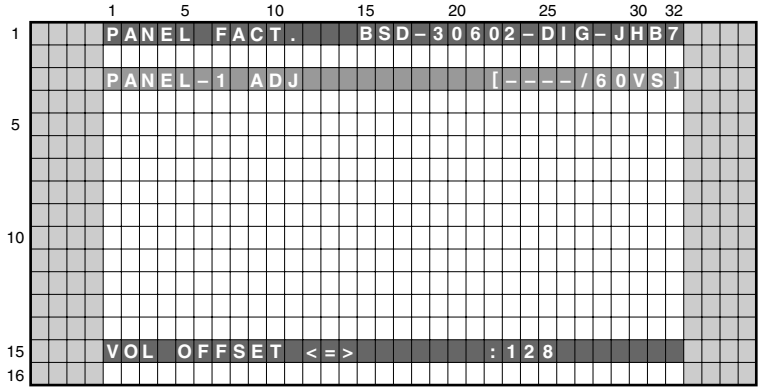
- Timing and voltage for the driving pulse are set. At the upper right of the screen, the wb table and frequency table indicating operation status are displayed, and at the lower left of the screen, the item for the upper nested layer (PANEL-1 ADJ [+]) is displayed. Pressing the SET key shifts the screen to the next nested layer below for item selection.



■ Key operation

<DOWN> : Shifting to PANEL-2 ADJ (+)
<UP> : Shifting to SHUT DOWN
<SET> : Shifting to the next nested layer

When the screen is shifted to the next nested layer below, a subitem is indicated on the 3rd line, and detailed data are indicated on the 15th line.



■ Key operation

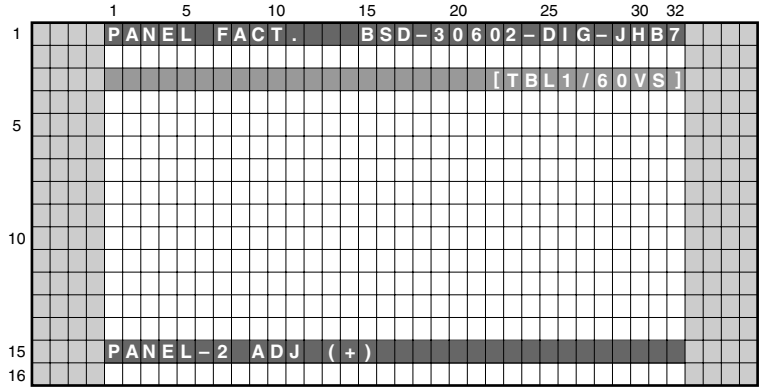
<DOWN> : Shifting to the next item
<UP> : Shifting to the previous item
<RIGHT> : Adding by one to the adjustment value
<LEFT> : Subtracting by one from the adjustment value
<VOL+> : Adding by 10 to the adjustment value
<VOL-> : Subtracting by 10 from the adjustment value
<SET> : Determining the adjustment value and shifting to the upper layer

- When the screen is shifted to the next nested layer below, a subitem is indicated on the 3rd line, and detailed data are indicated on the 15th line.
- When the screen is shifted to this layer while the RASTER MASK is selected, the Panel W/B setting is temporarily set to default.

<Lower-layer items of PANEL-1 ADJ>

No.	Items	Adjustment/Setting Value	RS-232C Command
1	X-SUS B <=>	120 to 136	XSB
2	Y-SUS B <=>	120 to 136	YSB
3	Y-SUSTAIL T1 <=>	120 to 136	YTG
4	Y-SUSTAIL T2 <=>	120 to 136	YTB
5	Y-SUSTAIL W <=>	120 to 136	YTW
6	XY-RST W1 <=>	120 to 136	RSW
7	XY-RST W2 <=>	120 to 136	RYW
8	VOL SUS <=>	000 to 255	VSU
9	VOL OFFSET <=>	000 to 255	VOF
10	VOL RST P <=>	000 to 255	VRP
11	SUS FREQ. <=>	MODE1 to MODE8	SFR

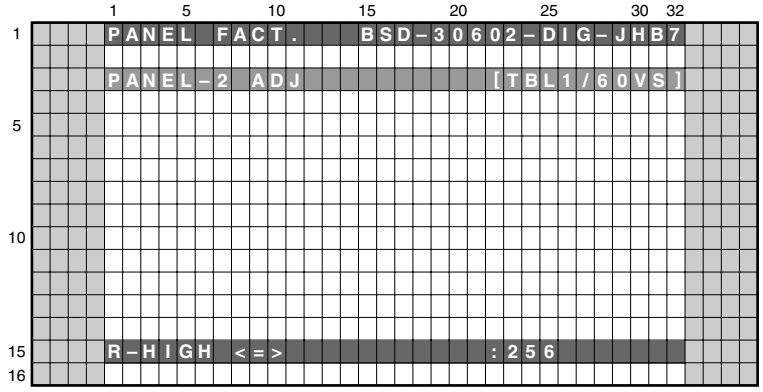
8.2.2.6 PANEL-2 ADJ (+)



RGB gain adjustment can be performed. Pressing the SET key shifts the screen to the next nested layer below for item selection.

■ Key operation

<DOWN> : Shifting to PANEL REVISE
<UP> : Shifting to PANEL-1 ADJ (+)
<SET> : Shifting to the next nested layer



The ABL/WB adjustment values are divided into 4 tables for each drive sequence. The table No. and adjustment value of the current drive sequence are indicated at right on the 3rd line on the screen.

■ Key operation

<DOWN> : Shifting to the next item
<UP> : Shifting to the previous item
<RIGHT> : Adding by one to the adjustment value
<LEFT> : Subtracting by one from the adjustment value
<VOL+> : Adding by 10 to the adjustment value
<VOL-> : Subtracting by 10 from the adjustment value
<SET> : Determining the adjustment value and shifting to the upper layer

Sequence and Adjustment value

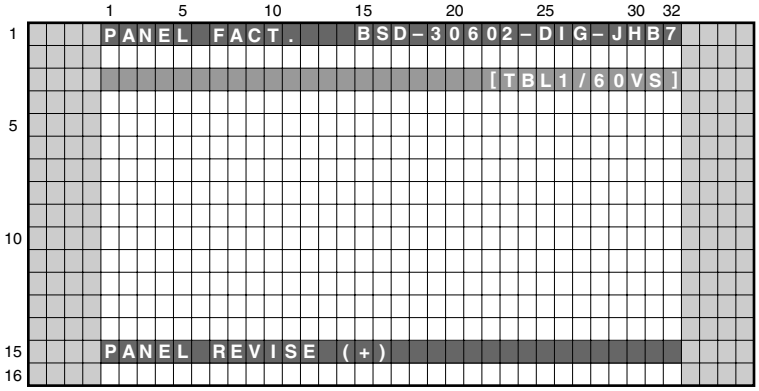
Sequence	Video 50 Hz	Video 60 Hz	Video 72 Hz	Video 75 Hz	PC 70 Hz
Adjustment value table	TBL 2	TBL 1	TBL 1	TBL 3	TBL 4

<Lower-layer items of PANEL-2 ADJ>

No.	Items	Adjustment/Setting Value	RS-232C Command
1	R-HIGH <=>	000 to 511	PRH
2	G-HIGH <=>	000 to 511	PGH
3	B-HIGH <=>	000 to 511	PBH
4	R-LOW <=>	000 to 999	PRL
5	G-LOW <=>	000 to 999	PGL
6	B-LOW <=>	000 to 999	PBL
7	ABL <=>	000 to 255	ABL

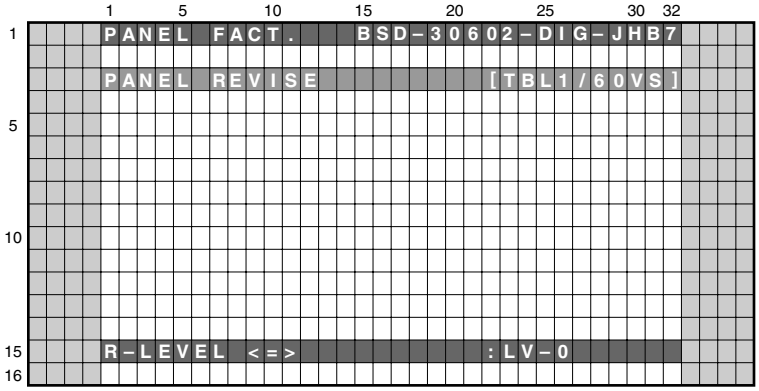
8.2.2.7 PANEL REVISE (+)

• The degradation compensation level for white balance can be set.



■ Key operation

<DOWN> : Shifting to ETC.(+)
<UP> : Shifting to PANEL-2 ADJ (+)
<SET> : Shifting to the next nested layer



■ Key operation

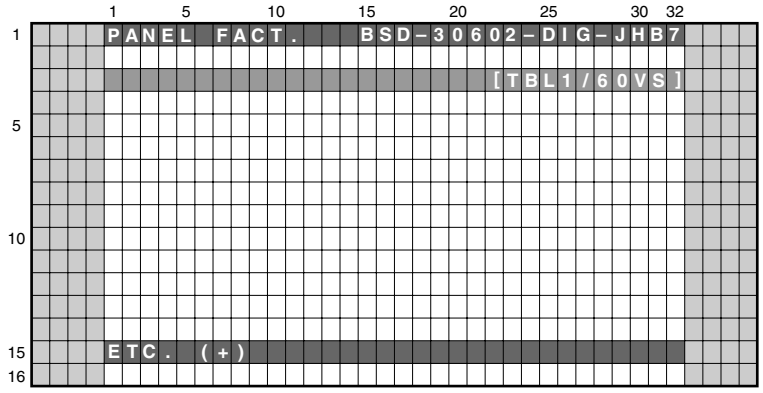
<DOWN> : Shifting to the next item
<UP> : Shifting to the previous item
<RIGHT> : Adding by one to the adjustment value
<LEFT> : Subtracting by one from the adjustment value
<SET> : Determining the setting value and shifting to the upper layer

< Lower-layer items of PANEL REVISE (+) >

No.	Items	Adjustment/Setting Value	RS-232C Command
1	R-LEVEL <=>	LV-0 to LV-7	RRL
2	G-LEVEL <=>	LV-0 to LV-7	RGL
3	B-LEVEL <=>	LV-0 to LV-7	RBL

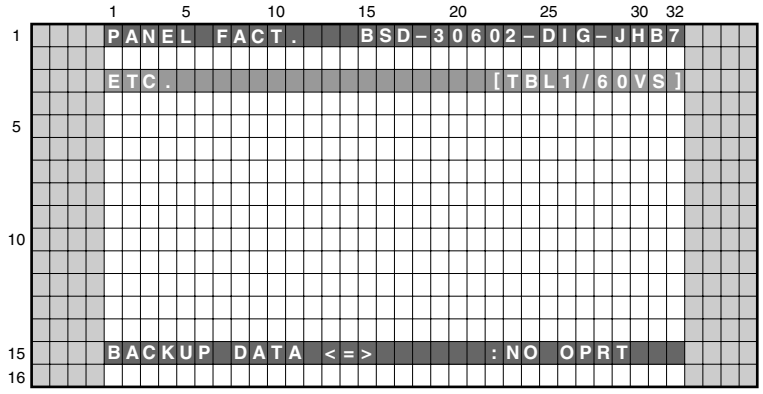
8.2.2.8 ETC. (+)

• Settings concerning backup of adjustment values and clearance of the histories can be made.



■ Key operation

<DOWN> : Shifting to RASTER MASK SETUP (+)
<UP> : Shifting to PANEL REVISE (+)
<SET> : Shifting to the next nested layer



■ Key operation

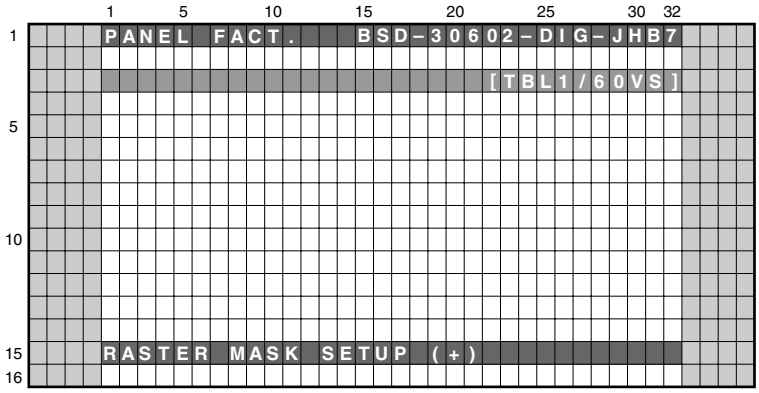
<DOWN> : Shifting to the next item
<UP> : Shifting to the previous item
<RIGHT> : Adding by one to the adjustment value
<LEFT> : Subtracting by one from the adjustment value
<SET> : Determining the setting value and shifting to the upper layer

<Lower-layer items of ETC.>

No.	Items	Adjustment/Setting Value	RS-232C Command
1	BACKUP DATA <=>	NO OPRT <=> TRANSFER or ERR	BCP
2	DIGITAL EEPROM <=>	NO OPRT <=> DELETE/REPAIR	FAJ/UAJ
3	PD INFO. <=>	NO OPRT <=> CLEAR	CPD
4	SD INFO. <=>	NO OPRT <=> CLEAR	CSD
5	HR-MTR INFO. <=>	NO OPRT <=> CLEAR	CHM
6	PM/B1-B5 <=>	NO OPRT <=> CLEAR	CPM
7	P-COUNT INFO. <=>	NO OPRT <=> CLEAR	CPC
8	MAX TEMP. <=>	NO OPRT <=> CLEAR	CMT

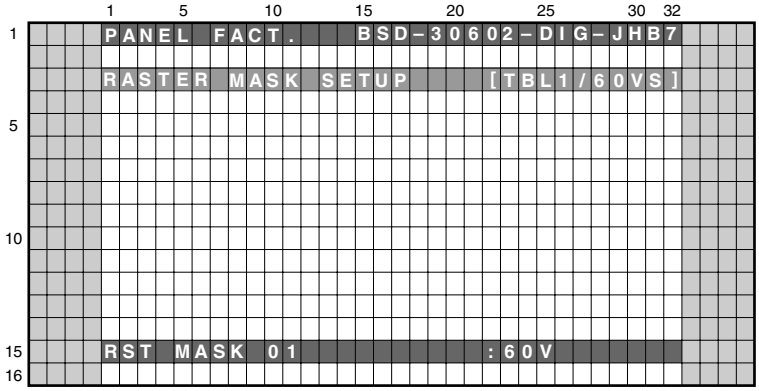
8.2.2.9 RASTER MASK SETUP (+)

• Setting of RASTER MASK and setting of drive sequence during Raster Mask mode can be made.



■ Key operation

<DOWN> : Shifting to PATTEN MASK SETUP
<UP> : Shifting to ETC. (+)
<SET> : Shifting to the next nested layer



■ Key operation

<DOWN> : Shifting to the next MASK
<UP> : Shifting to the previous MASK
<RIGHT> : Changing MASK sequence (+)
<LEFT> : Changing MASK sequence (-)
<SET> : Determining the setting value and shifting to the upper layer

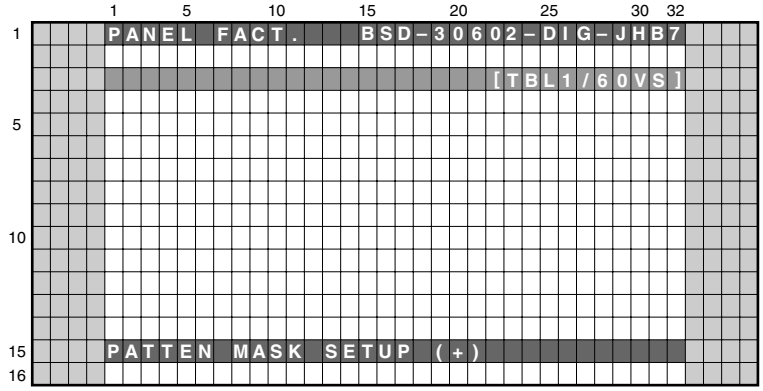
<Lower-layer items of RASTER MASK SETUP>

No.	Items	Adjustment/Setting Value	RS-232C Command
1	MASK OFF	<=> 48V <=> 50V <=> 60V <=> 60P <=> 70P <=> 72V <=> 75V <=> (Each sequence can be selected.)	MKS+S00
2	PTN MASK 01 <=>		MKS+S51
3	• • •		• • •
4	PTN MASK 24 <=>		MKS+S74

• The MASK indication sequence can be changed among 48V, 50V, 60V, 72V, 75V, 60P, and 70P, using the Right or Left key. The selected sequence and the ABL/WB table are retained until the mask is turned off.
• 48V and 60P are represented by 50V and 60V, respectively. The ABL/WB table is changed to the PC table.

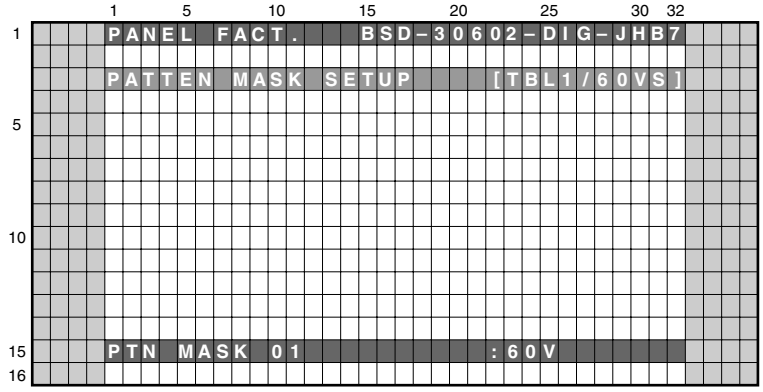
8.2.2.10 PATTEN MASK SETUP (+)

• Setting of PATTERN MASK and setting of drive sequence during Pattern Mask mode can be made.



■ Key operation

<DOWN> : Shifting to COMBI MASK (+)
<UP> : Shifting to RASTER MASK SETUP (+)
<SET> : Shifting to the next nested layer



■ Key operation

<DOWN> : Shifting to the next MASK
<UP> : Shifting to the previous MASK
<RIGHT> : Changing MASK sequence (+)
<LEFT> : Changing MASK sequence (-)
<SET> : Determining the setting value and shifting to the upper layer

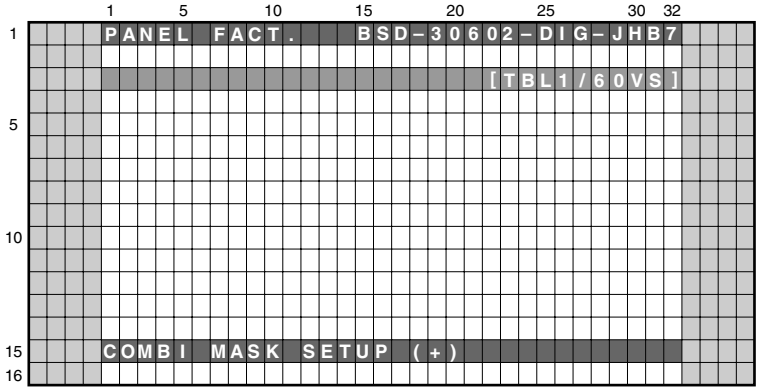
<Lower-layer items of PATTERN MASK SETUP (+) >

No.	Items	Adjustment/Setting Value	RS-232C Command
1	MASK OFF	<=> 48V <=> 50V <=> 60V <=> 60P <=> 70P <=> 72V <=> 75V <=> (Each sequence can be selected.)	MKS+S00
2	RST MASK 01 <=>		MKS+S01
3	• • •		• • •
4	RST MASK 39 <=>		MKS+S39

• The MASK indication sequence can be changed among 48V, 50V, 60V, 72V, 75V, 60P, and 70P, using the Right or Left key. The selected sequence and the ABL/WB table are retained until the mask is turned off.
• 48V and 60P are represented by 50V and 60V, respectively. The ABL/WB table is changed to the PC table.

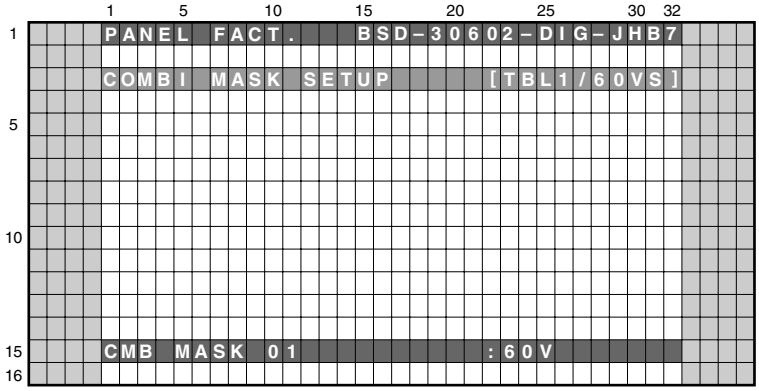
8.2.2.11 COMBI MASK SETUP (+)

• Setting of COMBI MASK and setting of drive sequence during Combi Mask mode can be made.



■ Key operation

<DOWN> : Shifting to PANEL INFORMATION (+)
<UP> : Shifting to RASTER MASK SETUP (+)
<SET> : Shifting to the next nested layer



■ Key operation

<DOWN> : Shifting to the next MASK
<UP> : Shifting to the previous MASK
<RIGHT> : Changing MASK sequence (+)
<LEFT> : Changing MASK sequence (-)
<SET> : Determining the setting value and shifting to the upper layer

<Lower-layer items of COMBI MASK SETUP (+) >

No.	Items	Adjustment/Setting Value	RS-232C Command
1	MASK OFF	<=> 48V <=> 50V <=> 60V <=> 60P <=> 70P <=> 72V <=> 75V <=> (Each sequence can be selected.)	MKC+S00
2	CMB MASK 01 <=>		MKC+S01
3	•••		•••
4	CMB MASK 10 <=>		MKC+S10

• The MASK indication sequence can be changed among 48V, 50V, 60V, 72V, 75V, 60P, and 70P, using the Right or Left key. The selected sequence and the ABL/WB table are retained until the mask is turned off.
• 48V and 60P are represented by 50V and 60V, respectively. The ABL/WB table is changed to the PC table.

8.2.3 INITIALIZE

● **Operation items**

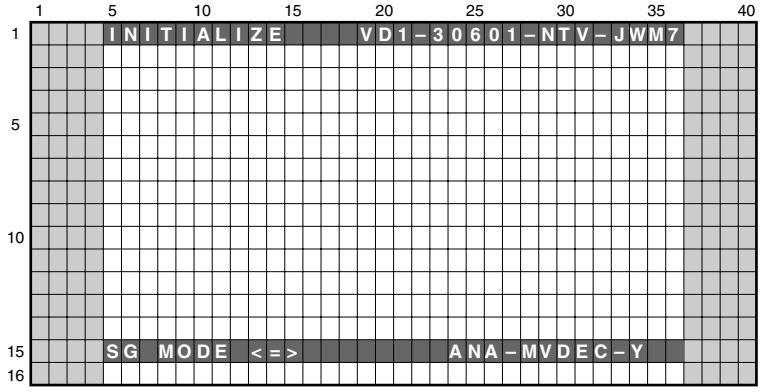
No.	Function/Display	Content	RS-232C Command
1	SYNC DET (+)	Only for the technical use.	–
2	SG MODE <=>	Paired SG_MODE with SG_PATTERN. Set SG Route.	–
3	SG PATTERN <=>	Paired SG_PATTERN with SG_MODE. Set SG Pattern.	–
4	SIDE MASK LEVEL	Color setup of side mask.	BSL GSL RSL
5	FINAL SETUP (+)	Initialize flash memories on virgin product status	FST
6	HDMI INTR POSITION (+)	Only for the technical use.	–

8.2.3.1 SYNC DET (+)

• As this is an item for technical engineers, no information on servicing is available.

8.2.3.2 SG MODE

SG MODE (selection of the SG routes) and SG PATTERN (selection of signal patterns) are used in combination. The SG route must be first selected in SG MODE. Then the SG pattern of a signal that is to be transmitted to the selected route must be selected.



Screen: SG MODE

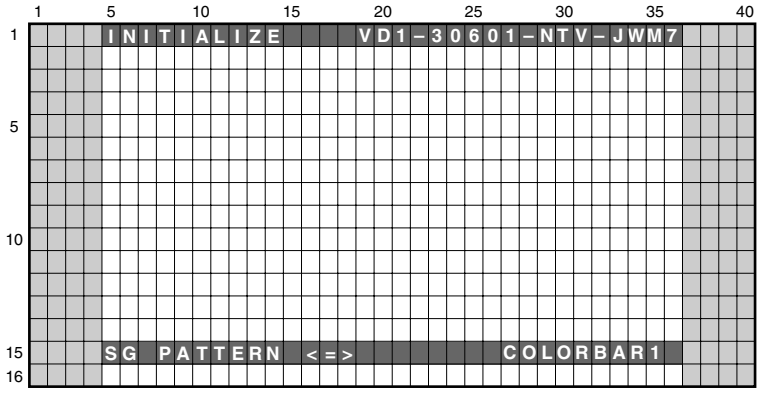
No.	Function/Display	Content
1	SG OFF	SG is set to OFF
2	ANA AD RGB	AD: RGB
3	ANA AD YCBCR	AD: Ycbcr
4	ANA SVDEC Y	SUB VDEC: Y (Analog output mode: SG VDEC feedback setting) *
5	ANA MVDEC Y	MAIN VDEC: Y (Analog output mode: SG VDEC feedback setting)
6	DIG MVDEC YCBCR	MAIN VDEC: YCbCr (color difference digital output mode)

Note *: The screen shifts to split-screen display, with the SG MODE screen displayed on the right (sublevel). Check on the block diagram for the SG generation point and signal routes.

■ **Important notice of the SG MODE and SG PATTERN**

- When the unit is in SG MODE, do NOT input signals to INPUTs 4-6.
- The setting of the Y/C separation function should be set to the NTSC during the VDEC SG mode.
- Only the component and RGB signals can be output during SG mode, so only the Y signal is input at the CVBS signal mode, thus the picture is composed in black and white color. This isn't a failure.
- ANA AD RGB (the route for inputting the 525i RGB signal to AD) in SG MODE is a setting for a nonexistent route for the unit. Therefore, there is no setting value at the stages after the MVDEC. For this reason, there may be discoloration of the color bars or slow change of the luminance after SG MODE is set to ANA AD RGB, but it is not a failure.

8.2.3.3 SG PATTERN



Screen: SG PATTERN

No.	Function/Display	SG Pattern (Brightness IRE Level/Color)	No.	Function/Display	SG Pattern (Brightness IRE Level/Color)
1	COLOR BAR1	Colorbar (75%)	11	RASTER4	Raster (75% Green)
2	COLOR BAR2	Colorbar (100%)	12	RASTER5	Raster (75% Magenta)
3	RAMP1	Ramp (100% white)	13	RASTER6	Raster (75% Red)
4	RAMP2	Ramp (100% Yellow)	14	RASTER7	Raster (75% Blue)
5	RAMP3	Ramp (75% Green)	15	RASTER8	Raster (– % Black)
6	RAMP4	Ramp (75% Red)	16	10STEP1	10STEP (100% white)
7	RAMP5	Ramp (75% Blue)	17	10STEP2	10STEP (100% Yellow)
8	RASTER1	Raster (100% White)	18	10STEP3	10STEP (75% Green)
9	RASTER2	Raster (75% Yellow)	19	10STEP4	10STEP (75% Red)
10	RASTER3	Raster (75% Cyanide)	20	10STEP5	10STEP (75% Blue)

Important notice of the SG MODE and SG PATTERN

- When the unit is in SG MODE, do NOT input signals to INPUTs 4-6.
- The setting of the Y/C separation function should be set to the NTSC during the VDEC SG mode.
- Only the component and RGB signals can be output during SG mode, so only the Y signal is input at the CVBS signal mode, thus the picture is composed in black and white color. This isn't a failure.
- ANA AD RGB (the route for inputting the 525i RGB signal to AD) in SG MODE is a setting for a nonexistent route for the unit. Therefore, there is no setting value at the stages after the MVDEC. For this reason, there may be discoloration of the color bars or slow change of the luminance after SG MODE is set to ANA AD RGB, but it is not a failure.

8.2.3.4 SIDE MASK LEVEL (+)

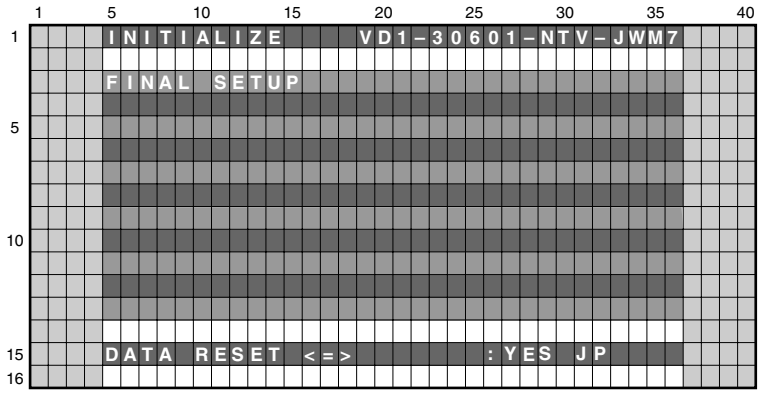
- Not available.
- Changing of the SIDE MASK LEVEL is possible in Integrator mode.

8.2.3.5 FINAL SETUP (+)

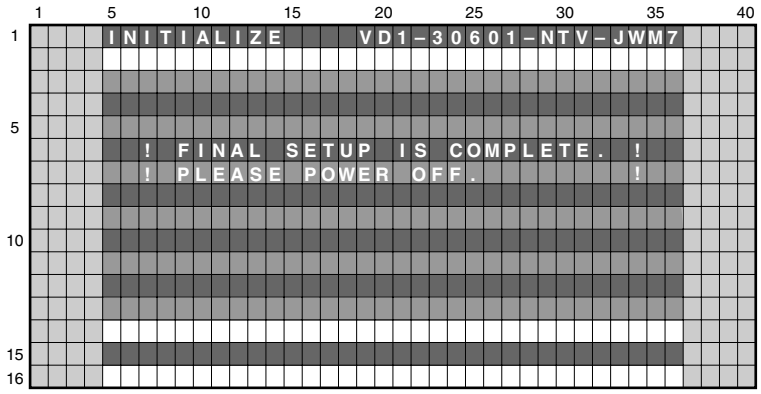
Various memory data are reset to factory-preset values. Data on destination are also written in.
As factory-preset values are different according to the destination, select an appropriate setting:

Kind of (YES)**
YES JP : For Japan
YES US : For North America
YES EU : For Europe and others

To reset various memory data to factory-preset values, hold the SET key pressed for about 5 seconds while an appropriate destination (YES **) is selected.



Screen: FINAL SETUP



Screen: Message when FINAL SETUP is completed.

IMPORTANT!
After the FINAL SETUP is finished, be sure to proceed to the following steps, in order to turn the Orbiter function and Mask Control function on.

1. Enter Standby mode.
2. Press the HOME MENU key, then within 3 seconds press the Standby key to enter Integrator mode. Or turn the unit on then press the Integrator key on the remote control unit for servicing.
3. Move to ORBITER MODE, using the Up or Down key, then select ON, using the Right or Left key.
4. Move to MASK CONTROL, using the Up or Down key, then select ON, using the Right or Left key.

8.2.3.6 HDMI INTR POSITION (+)

- As this is an item for technical engineers, no information on servicing is available.

9. LIST OF RS-232C COMMANDS

9.1 RS-232C COMMANDS OUTLINE

9.1.1 DESCRIPTION OF RS-232C COMMANDS

With the PDP-5000EX/PRO-FHD1, the serial port is commonly used by the RS-232C and SR+ connectors. Although the setting upon shipment is RS-232C, it can be changed to SR+, using the Home menu. If SR+ is selected, to use the RS-232C commands during servicing to control the unit the setting must be returned to RS-232C.

●How to switch between SR+ and RS-232C

There are two ways to switch: (1) by using the remote control unit during Standby mode, and (2) by using the Home menu.

(1) Switching by using the remote control unit during Standby mode

- **From SR+ to RS-232C**
  With the unit in normal Standby mode, press a key other than the Standby key. Then within 10 seconds, hold the Volume + (or -) key pressed for 3 to 10 seconds.
  Then hold the sprit key pressed for 3 to 10 seconds. Then within 3 seconds, press the Enter key.
  The Standby LED flashes twice.
  Then the setting is switched to RS-232C, and the baud rate becomes 9600 bps.

- **From RS-232C to SR+**
  With the unit in normal Standby mode, press a key other than the Standby key. Then within 10 seconds, hold the Volume + (or -) key pressed for 3 to 10 seconds.
  Then hold the sprit key pressed for 3 to 10 seconds. Then within 3 seconds, press the HOME MENU key.
  The Standby LED flashes twice.
  Then the setting is switched to SR+.

(2) Switching by using the Home menu

- **From SR+ to RS-232C**
  Press the HOME MENU key. Move the cursor to Initial Setting, using the Up or Down key, then press the Enter key.
  Move the cursor to SR+, by the Up or Down key. Move the cursor to "Off," using the Left or Right key.
  Press the HOME MENU key to exit the Home menu.
  Then the setting is switched to RS-232C, and the baud rate becomes 9600 bps.

- **From RS-232C to SR+**
  Press the HOME MENU key. Move the cursor to Initial Setting, by using the Up or Down key, and press the Enter key.
  Move the cursor to SR+, by using the Up or Down key. Move the cursor to "On," by using the Left or Right key.
  Press the HOME MENU key to exit from the Home menu.
  Then the setting is switched to SR+.

●About RS-232C commands during Standby mode

During Standby mode (while the power to the main microcomputer is off), RS-232C commands (excluding some, such as PON) are not valid. If you wish to send invalid commands, such as DRV, during Standby mode, proceed in the following way:

During Standby
↓
ZACS00 (Although this is a command for aging, it is used for starting up the main microcomputer, in this case.)
↓ (Within 10 seconds)
DRVS00 (To turn the drive off)
↓ (Within 10 seconds)
PON

9.1.2 COMMAND PROTOCOL

● Command format

■Communication protocol : Asynchronous serial communication by RS-232C

Start bit length	: 1 bit
Data width	: 8 bit (ASCII code/ no distinction between upper case and lower case)
Parity	: None
Stop bit length	: 1 bit
Baud rate	: 9600 bps

■Adjustment function

Direct effectivity of numbers : When a number is transmitted after a command, an adjustment value can be directly set.

■Data format

The format of the control signal transmitted from the user side controller is as described below.
STX (02Hex) is arranged at the time of communication start and ETX (03Hex) is arranged at the time of data transmission complete, and ID, command and parameter are arranged in between. Data consists of ASCII type alphanumeric characters, and there is no distinction between the upper case and the lower case.

■In the case of command only
[single function command]

STX	ID	Command	ETX
0x02	**	□□□	0x03

■When setting/adjustment data is accompanied
[setting/adjustment command]

STX	ID	Command	Parameter	ETX
0x02	**	□□□	△△△	0x03

■Command processing

Command processing starts as soon as the command is entered.
ID shall be the two asterisks, "**".

■Confirmation of reception

The main microcomputer will make judgment to the command received, and if the command is judged to be an effective one, processing will be executed. When the system is in the standby status for the next command after completion of the processing, a reply to the received command is sent out. The data to be responded is a data in the upper case after deleting the ID code from the received command.

■When setting/adjustment data is accompanied

Data transmitted by PC

STX	ID	Command	Parameter	ETX
0x02	**	□□□	△△△	0x03

→ Reply data

STX	Command	Parameter	ETX
0x02	□□□	△△△	0x03

■In the case of command only

Data transmitted by PC

STX	ID	Command	ETX
0x02	**	□□□	0x03

→ Reply data

STX	Command	ETX
0x02	□□□	0x03

When responding, ERR is sent back if the command is unknown, and XXX is sent back if the command itself is valid but it cannot be processed because of its status.

■In the case of invalid command

Data transmitted by PC

STX	ID	Command	ETX
0x02	**	□□□	0x03

→ Reply data

STX	Command	ETX
0x02	ERR	0x03

■In the case of a command not executable due to its status

Data transmitted by PC

STX	ID	Command	ETX
0x02	**	□□□	0x03

→ Reply data

STX	Command	ETX
0x02	XXX	0x03

■Processing in the case of an error

If a communication error occurs between STX and ETX, processing of that command is stopped, and the reception buffer is cleared.
In the command reception process, the character string transmitted after the receipt of STX are continued to be stored in the register, and by receipt of ETX, the character string sandwiched between STX and ETX is recognized as a command. If the prepared character string storage buffer (24 bytes including STX, ID and ETX) is exceeded, a reply will not be sent out.

9.1.3 DEFINITION OF COMMAND

● Definition of command

■Single function command

It is a command that a command alone will complete an operation, and the command section consists of three characters.

Data transmitted by main

STX	ID	Command	ETX
0x02	**	PON	0x03

→

Reply data

STX	Command	ETX
0x02	PON	0x03

■Adjustment command and adjustment value

It is a command, accompanied by an adjustment value, to change the parameter value, and the command section is also three characters as in the case of a single function command. The adjustment value is a three character decimal numerical data within the range of 000-999. Incidentally, the adjustable range will be different depending on the function to be adjusted. (Be careful as it is not always up to 999.)

Data transmitted by main

STX	ID	Command	Parameter	ETX
0x02	**	CNT	128	0x03

→

Reply data

STX	Command	Parameter	ETX
0x02	CNT	128	0x03

∗ XXX will be transmitted if the received command is exceeding the adjustable range of the adjustment value.
∗ When the same setting value is transmitted consecutively for two times or more, the setting is overwritten without responding with XXX even though the command is invalid, and an ACK after deleting the ID is sent back.

■Setting command and setting value

It is a command, accompanied by a setting value, to change the setting value of the parameter, and the command section consists of three characters. The setting value consists of three characters, and the first character is fixed to S and the remaining two characters are decimal numbers within the range of S00-S99.

Data transmitted by main

STX	ID	Command	Parameter	ETX
0x02	**	MKS	S02	0x03

→

Reply data

STX	Command	Parameter	ETX
0x02	MKS	S02	0x03

∗ XXX will be transmitted if the received command does not exist as a setting value.
∗ When the same setting value is transmitted consecutively for two times or more, the setting is overwritten without responding with XXX even though the command is invalid, and an ACK after deleting the ID is sent back.

■Status acquisition (QUEST) command

This is a command to report the operational status and the setting value.
When a command is received, an applicable content depending on the type of command is read out from the memory and sent back.
The command section consists of three characters, and the first character is fixed to Q. The second character and on are set depending on the content of the information.
When sending back a reply data, the received command, various data converted to ASCII code and checksum of that data are added and sent.
The data length will be subject to each individual specification as the content of a reply will be different depending on the type of QUEST command.

Data transmitted by main

STX	ID	Command	ETX
0x02	**	QS1	0x03

→

Reply data

STX	Command	Parameter	ETX
0x02	QS1	•••••••••	0x03

9.2 RS-232C COMMAND TABLE

If SR+ is set to ON, RS-232C commands cannot be received.
To switch the setting to RS-232C ON during Standby mode using the remote control unit, see 6.2 "RS-232C COMMANDS."

[Description of the items in the table]

① **Division: Classification of commands by definition**
ADJ: Commands for adjustment
FNC: Commands for function setting
SGL: Commands for a single function
SUB: Auxiliary commands

② **Command Reception Point:**
Classification by the microcomputer (main or module [Mod]) that receives a command to execute

③ **Effective Commands during Factory Mode:**
Classification of commands that are effective only in Factory mode (status after the command FAY is received)
The commands that are effective only in Factory mode return ERR during normal operation mode.

Command		Division	Function	command Reception Point		Last Memory	Only FAY is Effective	Remarks
				Mod	Main			
A								
ABL	***	ADJ	Adjusting the upper limit of the power	●		Mod	●	UP/DW key not effective
AMT	S00	FNC	Canceling audio muting		●			
	S01	FNC	Executing audio muting					
APW	S00	FNC	WB correction interlocked with APL: OFF	●			●	
	S01	FNC	WB correction interlocked with APL: ON	●			●	
B								
BCP		SGL	Copying the backup data in the EEPROM	●			●	
BHI	***	ADJ	User white balance : BLUE highlight	●	●	Main		
BLW	***	ADJ	User white balance : BLUE lowlight	●	●	Main		
BRT	***	ADJ	User brightness	●	●	Main		
BSM	S00	FNC	After image/Burning safe mode: OFF	●				
	S01	FNC	After image/Burning safe mode: ON	●				
C								
CBU		SGL	Clearing backup data	●			●	
CHM		SGL	Clearing data of the hour meter	●			●	
CNT	***	ADJ	User contrast	●	●	Main		
CMT		SGL	Clearing data of the maximum temperature	●			●	
CPC		SGL	Clearing power-on count data	●			●	
CPD		SGL	Clearing power-down histrory	●			●	
CPM		SGL	Clearing data of the pulse meter	●			●	
CSD		SGL	Clearing shutdown history	●			●	
D								
DRV	S00	FNC	Main power off	●				
	S01	FNC	Main power on	●				
DW*		SUB	To subtract *** to the adjustment value (*** = 000 to 999, designated by a function command)		●			
E								
ESV	S00	FNC	Setting Power Consumption mode to normal sequence and normal curve	●				
	S01	FNC	Setting Power Consumption mode to silent sequence and normal curve	●				
	S02	FNC	Setting Power Consumption mode to silent sequence and power-saving curve	●				
	S10	FNC	Setting Power Consumption mode to normal sequence and normal curve	●				
	S11	FNC	Setting Power Consumption mode to silent sequence and normal curve	●				
	S12	FNC	Setting Power Consumption mode to silent sequence and power-saving curve	●				

Command		Division	Function	command Reception Point		Last Memory	Only FAY is Effective	Remarks
				Mod	Main			
F								
FAJ		SGL	Determining the flag of the unit adjustment in "adjustment is completed"	●			●	
FAN		SGL	Factory mode off	●	●		●	
FAY		SGL	Factory mode on	●	●			
FST	S01	FNC	Set each memory setting of MTB side to the shipment state of Japan.		●		●	
	S02	FNC	Set each memory setting of MTB side to the shipment state of North America.		●		●	
	S03	FNC	Set each memory setting of MTB side to the shipment state of Europe.		●		●	
G								
GHI	***	ADJ	User white balance : GREEN highlight	●	●	Main		
GLW	***	ADJ	User white balance : GREEN lowlight	●	●	Main		
I								
INP	S01	FNC	Input switch: INPUT 1		●	Main		
	S02	FNC	Input switch: INPUT 2		●	Main		
	S03	FNC	Input switch: INPUT 3		●	Main		
	S04	FNC	Input switch: INPUT 4		●	Main		
	S05	FNC	Input switch: INPUT 5		●	Main		
	S06	FNC	Input switch: INPUT 6		●	Main		
M								
MKC	S00	FNC	MASK off	●		Mod	●	
	S01	FNC	H ramp (slant 1) M	●		Mod	●	
	S02	FNC	H ramp (slant 4) M	●		Mod	●	
	S03	FNC	Slanting ramp M	●		Mod	●	
	S04	FNC	30 for aging	●		Mod	●	
	S05	FNC	05 for aging	●		Mod	●	
	S06	FNC	Erasing afterimage 1	●		Mod	●	
	S07	FNC	Erasing afterimage 2 (RGB: zigzag, V: reverse)	●		Mod	●	
	S08	FNC	White (change in luminance level)	●		Mod	●	
	S09	FNC	PEAK SEEK RASTER	●		Mod	●	
	S10	FNC	For technique evaluation 1	●		Mod	●	
MKS	S00	FNC	MASK off	●		Mod		
	S01	FNC	H ramp (slant 1)	●		Mod	●	
	S02	FNC	H ramp (slant 4)	●		Mod	●	
	S03	FNC	V ramp (slant 1)	●		Mod	●	
	S04	FNC	Slanting ramp	●		Mod	●	
	S05	FNC	Window (Hi= 870, Lo= 102)	●		Mod	●	
	S06	FNC	Window (Hi= 1023, Lo= 102)	●		Mod	●	
	S07	FNC	Window (Hi= 1023)	●		Mod	●	
	S08	FNC	Window (Hi= 1023) 4 %	●		Mod	●	
	S09	FNC	Window (Hi= 1023) 1.25 %	●		Mod	●	
	S10	FNC	Window (1/7 LINE)	●		Mod	●	
	S11	FNC	STRIPE (MGT/GRN)	●		Mod	●	
	S12	FNC	STRIPE (GRN/MGT)	●		Mod	●	
	S13	FNC	B & W, checker (1 line)	●		Mod	●	
	S14	FNC	B & W, checker (2 lines)	●		Mod	●	
	S15	FNC	B & W, checker (4 lines)	●		Mod	●	
	S16	FNC	B & W, checker (8 lines)	●		Mod	●	
	S17	FNC	COLOR BAR	●		Mod	●	

Command		Division	Function	command Reception Point		Last Memory	Only FAY is Effective	Remarks
				Mod	Main			
MKS	S18	FNC	Slanting lines	●		Mod	●	
	S19	FNC	Red & black, checker (1 line)	●		Mod	●	
	S20	FNC	Red & black, checker (2 lines)	●		Mod	●	
	S21	FNC	Red & black, checker (4 ines)	●		Mod	●	
	S22	FNC	Red & black, checker (8 lines)	●		Mod	●	
	S23	FNC	RGB zigzag, V reverse	●		Mod	●	
	S24	FNC	SUS 2000 pulses (black raster)	●		Mod	●	
	S25	FNC	Window (Hi= 870, Lo= 102) Pattern	●		Mod	●	
	S26	FNC	Window (Hi= 1023, Lo= 102) Pattern	●		Mod	●	
	S27	FNC	Window (Hi= 1023) Pattern	●		Mod	●	
	S28	FNC	Window (Hi= 1023) 4 % Pattern	●		Mod	●	
	S29	FNC	Window (Hi= 1023) 1.25 % Pattern	●		Mod	●	
	S30	FNC	Window (1/7 LINE) Pattern	●		Mod	●	
	S31	FNC	Noise ON - White	●		Mod	●	
	S32	FNC	Noise ON - Red	●		Mod	●	
	S33	FNC	Noise ON - Green	●		Mod	●	
	S34	FNC	Noise ON - Blue	●		Mod	●	
	S35	FNC	Noise ON - Black	●		Mod	●	
	S36	FNC	For technique evaluation 1	●		Mod	●	
	S37	FNC	For technique evaluation 2	●		Mod	●	
	S38	FNC	For technique evaluation 3	●		Mod	●	
	S39	FNC	For technique evaluation 4	●		Mod	●	
	S51	FNC	Raster - White	●		Mod	●	
	S52	FNC	Raster - Red	●		Mod	●	
	S53	FNC	Raster - Green	●		Mod	●	
	S54	FNC	Raster - Blue	●		Mod	●	
	S55	FNC	Raster - Black	●		Mod	●	
	S56	FNC	Raster - Cyan	●		Mod	●	
	S57	FNC	Raster - Magenta	●		Mod	●	
	S58	FNC	Raster - Yellow	●		Mod	●	
	S59	FNC	Raster - Light purple 1	●		Mod	●	
	S60	FNC	Raster - Sky blue 1	●		Mod	●	
	S61	FNC	Raster - Yellow egg color	●		Mod	●	
	S62	FNC	Raster - Light blue	●		Mod	●	
	S63	FNC	Raster - Indigo blue	●		Mod	●	
	S64	FNC	Raster - Red 582	●		Mod	●	
	S65	FNC	Raster - Red 850	●		Mod	●	
	S66	FNC	Raster - Green 850	●		Mod	●	
	S67	FNC	Raster - Blue 850	●		Mod	●	
	S68	FNC	Raster - Gray 850	●		Mod	●	
	S69	FNC	Raster - Beige	●		Mod	●	
	S70	FNC	Raster - Green 582	●		Mod	●	
	S71	FNC	Raster - Cyan 464	●		Mod	●	
	S72	FNC	Raster - Sky blue 2	●		Mod	●	
	S73	FNC	Raster - Light purple 2	●		Mod	●	
	S74	FNC	Raster - Gray 362	●		Mod	●	

Command		Division	Function	command Reception Point		Last Memory	Only FAY is Effective	Remarks
				Mod	Main			
MST	S00	FNC	Single screen display		●			
	S01	FNC	PsideP (main size is normal)		●			
	S08	FNC	SWAP (swapping pictures between the main screen and subscreen)		●	Main		
O								
OSD	S00	001	Turning OSD setting to off		●	Main		
	S01	001	Turning OSD setting to off		●	Main		
P								
PAV	S**	FNC	Switching panel functions interlocked with the AV selection	●				
PBH	***	ADJ	Panel white balance adjustment - Blue highlight	●		Mod	●	UP/DW key not effective
PBL	***	ADJ	Panel white balance adjustment - Blue low light	●		Mod	●	UP/DW key not effective
PDM	S00	FNC	Passing PD signals to the Power SUPPLY Unit => Power-down	●				
	S01	FNC	Not passing PD signals to the Power SUPPLY Unit => No power-down	●				
PFN		SGL	(Panel) Factory mode: off	●			●	
PFS		SGL	Setup at shipment	●			●	
PFY		SGL	(Panel) Factory mode: on	●			●	The MASK setting and picture-quality settings of the MB remain the same.
PGH	***	ADJ	Panel white balance adjustment - Green highlight	●		Mod	●	UP/DW key not effective
PGL	***	ADJ	Panel white balance adjustment - Green low light	●		Mod	●	UP/DW key not effective
PGM	001	FNC	Setting of the gamma table	●				
PMT	S00	FNC	Canceling panel muting	●				
	S01	FNC	Panel muting	●				
POF		SGL	Power off	●	●	Main		
PON		SGL	Power on	●	●	Main		
PPT	S00	FNC	Panel protection: off	●			●	
	S01	FNC	Panel protection: on	●			●	
PRH	***	ADJ	Panel white balance adjustment - Red highlight	●		Mod	●	UP/DW key not effective
PRL	***	ADJ	Panel white balance adjustment - Red low light	●		Mod	●	UP/DW key not effective
PUC	S00	FNC	Pure cinema: off	●	●	Main	●	
	S01	FNC	Pure cinema: standard	●	●	Main	●	
	S02	FNC	Pure cinema: advanced	●	●	Main	●	
Q								
QAJ		QST	Acquiring various adjustment values	●				
QIP		QST	Acquiring various input signal data	●				
QMT		QST	Acquiring temperature of MTB side and Fan speed		●			
QNG		QST	Acquiring shut-down information of MTB side		●			
QPD		QST	Acquiring logs of power-down points	●				
QPM		QST	Acquiring data of the pulse meter	●				
QPW		QST	Acquiring panel white balance adjustment values	●				
QS1		QST	Acquiring unit data, such as the software version common to all models, regardless of destination	●	●			
QS2		QST	Acquiring data on the status of the unit, such as temperature	●				
QSD		QST	Acquiring data on shutdown	●				
QSI		QST	Acquiring data related with signals of panel side	●				

Command		Division	Function	command Reception Point		Last Memory	Only FAY is Effective	Remarks
				Mod	Main			
R								
RBL	S**	FNC	Setting of blue level for panel degradation correction	●		Mod	●	
RGL	S**	FNC	Setting of green level for panel degradation correction	●		Mod	●	
RHI	***	ADJ	User white balance - Red highlight	●	●	Main		UP/DW key not effective
RLW	***	ADJ	User white balance - Red low light	●	●	Main		UP/DW key not effective
RRL	S**	FNC	Setting of red level for panel degradation correction	●		Mod	●	
RSW	***	ADJ	Adjustment of the width of XY reset pulse 1	●		Mod	●	UP/DW key not effective
RYW	***	ADJ	Adjustment of the width of XY reset pulse 2	●		Mod	●	UP/DW key not effective
S								
SDM	S00	FNC	Shutdown enabled	●				
	S01	FNC	Shutdown prohibited	●				
SFR	S01	FNC	Measures against AM radio noise - Pattern 1	●		Mod	●	
	S02	FNC	Measures against AM radio noise - Pattern 2	●		Mod	●	
	S03	FNC	Measures against AM radio noise - Pattern 3	●		Mod	●	
	S04	FNC	Measures against AM radio noise - Pattern 4	●		Mod	●	
	S05	FNC	Measures against AM radio noise - Pattern 5	●		Mod	●	
	S06	FNC	Measures against AM radio noise - Pattern 6	●		Mod	●	
	S07	FNC	Measures against AM radio noise - Pattern 7	●		Mod	●	
	S08	FNC	Measures against AM radio noise - Pattern 8	●		Mod	●	
SMM	S**	FNC	Setting of the effective area during streaking correction	●			●	
SN0	***	ADJ	Setting of the serial No. 0 (panel)	●		Mod	●	UP/DW key not effective Alphabetics can be input.
SN1	***	ADJ	Setting of the serial No. 1 (panel)	●		Mod	●	UP/DW key not effective Alphabetics can be input.
SN2	***	ADJ	Setting of the serial No. 2 (panel)	●		Mod	●	UP/DW key not effective Alphabetics can be input.
SN3	***	ADJ	Setting of the serial No. 3 (panel)	●		Mod	●	UP/DW key not effective Alphabetics can be input.
SN4	***	ADJ	Setting of the serial No. 4 (panel)	●		Mod	●	UP/DW key not effective Alphabetics can be input.
SSI	S01	FNC	Sub input switch: INPUT 1		●	Main		
	S02	FNC	Sub input switch: INPUT 2		●	Main		
	S03	FNC	Sub input switch: INPUT 3		●	Main		
	S04	FNC	Sub input switch: INPUT 4		●	Main		
	S05	FNC	Sub input switch: INPUT 5		●	Main		
	S06	FNC	Sub input switch: INPUT 6		●	Main		
SSM	S00	FNC	Turning the external SSCG operation off	●			●	
	S01	FNC	Turning the external SSCG operation on (normal operation)	●			●	
SZM	S00	FNC	Setting the screen size to Dot by Dot or PARTIAL		●	Main		
	S01	FNC	Setting the screen size to 4 : 3		●	Main		
	S02	FNC	Setting the screen size to FULL or FULL 1080i		●	Main		
	S03	FNC	Setting the screen size to ZOOM		●	Main		
	S04	FNC	Setting the screen size to CINEMA		●	Main		
	S05	FNC	Setting the screen size to WIDE		●	Main		
	S06	FNC	Setting the screen size to FULL 14 : 9		●	Main		
	S07	FNC	Setting the screen size to CINEMA 14 : 9		●	Main		
	S08	FNC	Setting the screen size to FULL 1035i		●	Main		

Command		Division	Function	command Reception Point		Last Memory	Only FAY is Effective	Remarks
				Mod	Main			
U								
UAJ		SGL	Determining the flag for the unit adjustment in "not adjusted"	●				
UP∗		SUB	To add ∗∗∗ to the adjustment value ∗∗∗ = 000 to 999 With DW0, the adjustment value is added by 10.		●			
V								
VFQ	S01	FNC	Setting the frequency in Mask mode to VD-48 Hz	●		Mod	●	
	S02	FNC	Setting the frequency in Mask mode to VD-50 Hz	●		Mod	●	
	S03	FNC	Setting the frequency in Mask mode to VD-60 Hz	●		Mod	●	
	S05	FNC	Setting the frequency in Mask mode to VD-72 Hz	●		Mod	●	
	S06	FNC	Setting the frequency in Mask mode to VD-75 Hz	●		Mod	●	
	S13	FNC	Setting the frequency in Mask mode to PC-60 Hz	●		Mod	●	
	S14	FNC	Setting the frequency in Mask mode to PC-70 Hz	●		Mod	●	
	S22	FNC	Setting the frequency in Mask mode to VD-50 Hz (nonstandard)	●		Mod	●	
	S23	FNC	Setting the frequency in Mask mode to VD-60 Hz (nonstandard)	●		Mod	●	
	S25	FNC	Setting the frequency in Mask mode to VD-72 Hz (nonstandard)	●		Mod	●	
	S26	FNC	Setting the frequency in Mask mode to VD-75 Hz (nonstandard)	●		Mod	●	
VOF	∗∗∗	ADJ	Adjustment of the reference value of Vofs voltage	●		Mod	●	UP/DW key not effective
VOL	UP∗, DW∗, ∗∗∗	ADJ	To adjust the volume (to be used in combination with UP∗/DW∗) ∗∗∗ = 000 to 060		●	Main		
VRP	∗∗∗	ADJ	Adjustment of the reference value of Vrst-p voltage	●		Mod	●	UP/DW key not effective
VSU	∗∗∗	ADJ	Adjustment of the reference value of Vsus voltage	●		Mod	●	UP/DW key not effective
W								
WBI	S00	FNC	Panel WB standard output mode: off	●			●	
	S01	FNC	Panel WB standard output mode: on	●			●	
X								
XSB	∗∗∗	ADJ	X-SUS-B ADJ	●		Mod	●	UP/DW key not effective
Y								
YSB	∗∗∗	ADJ	Y-SUS-B ADJ	●		Mod	●	UP/DW key not effective
YTB	∗∗∗	ADJ	Y-SUSTAIL T2 ADJ	●		Mod	●	UP/DW key not effective
YTG	∗∗∗	ADJ	Y-SUSTAIL T1 ADJ	●		Mod	●	UP/DW key not effective
YTW	∗∗∗	ADJ	Y-SUSTAIL W ADJ	●		Mod	●	UP/DW key not effective
Z								
ZME	SGL		Initializing the video EEPROM data		●		●	
ZPR	SGL		Initializing the setting data to which no adjustment command is provided	●			●	

9.3 OUTLINE OF COMMANDS

9.3.1 QS1

■ Acquisition of panel statuses • • • [QS1]

The command QS1 is for acquiring data necessary for authentication of both the main unit's microcomputer and the module's microcomputer.

Command Format	Effective Operation Modes	Function	Remarks
[QS1]	Continually	To acquire data on product status	Return data: 105 Byte

Data Arrangement		Data Length	Output Example
ECO		3 Byte	QS1
1	Resolution/size	1 Byte	F
2	Generation	1 Byte	7
3	Destination	1 Byte	*
4	Grade	1 Byte	*
5	Product type	1 Byte	M
6	MDUcom-Boot	3 Byte	01A
7	MDUcom-PRG	8 Byte	001A_M "space × 2"
8	ASTRA-Boot	3 Byte	01A
9	ASTRA-PRG	8 Byte	001Y "space × 4"
10	SQ-VIDEO	4 Byte	001Y
11	SQ-PC	4 Byte	001Y
12	Panel type 1	1 Byte	P
13	Reserved	7 Byte	*******
14	, (comma)	1 Byte	
15	MTB generation	1 Byte	7
16	MTB destination	1 Byte	*
17	MTB grade	1 Byte	W
18	MTB product type	1 Byte	M
19	IF microcomputer	4 Byte	
20	Main microcomputer	8 Byte	
21	Main microcomputer boot	4 Byte	
22	Multi processor	8 Byte	
23	Multi processor boot	4 Byte	
24	Reserved	24 Byte	
CS		2 Byte	7B

1: Resolution/size	
3	1024*768-42
4	1024*768-43
5	1280*768-50
6	1365*768-50
7	1365*768-60
F	1920*1080-50

2: Generation	
6	G6
7	G7
8	G8
9	G9
0	G10

3: Destination	
*	Common
A	North America (Reserved)
E	Europe (Reserved)
J	Japan (Reserved)

4: Grade	
*	Common

5: Product type	
S	System model
B	Integrated TV
M	Monitor
D	Standard module

12: Panel type 1	
P	Conventional panel
F	High-efficiency panel

16: Destination of MTB	
J	Japan
A	North America
E	Europe

18: Product type of MTB	
S	System model
B	Integrated TV
M	FHD

15, 17, 19 to 23: Product type of MTB	
IF microcomputer	Version of IF microcomputer
Main microcomputer	Common version of Main microcomputer
Main microcomputer boot	Boot version of Main microcomputer
Multi processor	Common version of Multi processor
Multi processor boot	Boot version of Multi processor

9.3.2 QS2

■ Acquisition of panel operation data • • • [QS2]

The command QS2 is for acquiring data on the panel's operations. Basically, this command is used for the module's microcomputer to inform the main unit's microcomputer of changes in panel operation.

Command Format	Effective Operation Modes	Function	Remarks
[QS2]	All operations	To acquire data on operations of the panel	Return data: 3 (ECO)+23(DATA)+2(CS)= 28 Byte

Data Arrangement		Data Length	Output Example
ECO		3 Byte	QS2
1	Notification of mode shifting to STB	1 Byte	1
2	Flag for adjustment of the main unit	1 Byte	0
3	Flag for adjustment-data backup	1 Byte	0
4	"1st PD" data	1 Byte	0
5	"2nd PD" data	1 Byte	0
6	Still picture detection	1 Byte	0
7	Reserved	2 Byte	**
8	Temperature data (TEMP 1)	3 Byte	128
9	SD main data	1 Byte	0
10	SD subdata	1 Byte	0
11	Operation status induced by SD	1 Byte	0
12	Data from the hour meter	8 Byte	00000259
13	MASK indication	1 Byte	0
CS		2 Byte	4A

Note : "00000259" of "Data from the hour meter" means 2 hours 59 minuts.

1: Notification of mode shifting to Standby	
0	Entering Standby mode failed
1	Entering Standby mode succeeded

2: Adjustment of the main unit	
0	Adjustment completed
1	Adjustment not completed

3: Adjustment-data backup	
0	With backup data
1	No data

4, 5: PD data	
0	No PD data
1	Not used
2	POWER
3	SCAN
4	SCN-5V
5	Y-DRV
6	Y-DCDC
7	Y-SUS
8	ADRS
9	X-DRV
A	X-DCDC
B	X-SUS
C	Not used
D	Not used
E	Not used
F	UNKNOWN

6: Still picture detection	
0	Normal screen
1	Still picture

9: SD main data	
0	No SD
1	SQ-IC
2	MDU-IIC
3	RST2
4	TEMP

10-1: SD-Sub (SQ-IC)	
0	No SD-Sub data
1	Communication error (LR/G7)
2	Drive stop (LR/G7)
3	BUSY
4	Communication error (L)
5	Drive stop (L)
6	Incoherent versions (H/S)
7	Incoherent versions (L/R)
8	Not used
9	Communication error (R)
A	Drive stop (R)

10-2: SD-Sub (IIC)	
0	No SD-Sub data
1	EEPROM
2	BACKUP
3	DAC

10-3: SD-Sub (TEMP)	
0	No SD-Sub data
1	TEMP1
2	Reserved

11: Operation status induced by SD	
0	Normal
1	Relay-off completed
2	During warning indication

13: MASK indication	
0	MASK-OFF
1	MASK-ON

- If no power-down is generated, 00 is transmitted. If a power-down is generated, data on power-down points are transmitted, with upper-level point as 1st PD and lower-level point as 2nd PD.
- The TEMP1 input value (10 bits) is transmitted in 3 bytes in decimal notation (range: 000-999) as temperature data. Values of 1000-1023 are handled as 999. (During Standby mode, the value retained in RAM is transmitted.)
- As to data on the hour-meter count, minute data (3 bytes) stored in the EEPROM are converted to hour data and described in 6 characters. These 6 characters and 2 characters representing minute are transmitted. The maximum recording time is 279,620 hours 16 minutes.

9.3.3 QIP

■ Acquisition of other data on the panel • • • [QIP]

The command QIP is for acquiring data other than those available with QS1 (data necessary before turning the power on) and QS2 (data to inform of operational status change).

Command Format	Effective Operation Modes	Function	Remarks
[QIP]	All operations	To acquire data on operations of the panel	Return data: 3 (ECO)+58(DATA)+2(CS)= 63 Byte

Data Arrangement		Data Length	Output Example
ECO		3 Byte	QIP
1	SERIAL	15 Byte	- - - - - - - - - - - - - - -
2	HOUR METER	8 Byte	00000000
3	TOTAL HR MTR	8 Byte	00000000
4	PON COUNTER	8 Byte	00000000
5	TEMP1 acquisition (Temperature value)	5 Byte	+23.5
6	TEMP0 acquisition (Not used)	5 Byte	+00.0 (Fixation)
7	MAX-TEMP1 acquisition (Temperature value)	5 Byte	+78.3
8	Reserved	4 Byte	****
CS		2 Byte	94

- Data for the Hour Meter and Backup Hour Meter are transmitted according to the same rules as for QS2.
- Data for TEMP1 and MAX_TEMP1 are output in 5 characters. The first character is assigned to + or -, and the fourth character is assigned as the decimal point. The maximum output value is +99.9. If an AD value greater than +99.9 is acquired, +99.9 will be retained.

9.3.4 QAJ

■ Acquisition of panel adjustment data (common data) • • • [QAJ]

The command QAJ is for acquiring data on the panel's factory-preset items that are common to the main unit and that share the same memory.

Command Format	Effective Operation Modes	Function	Remarks
[QAJ]	All operations	To acquire data on operations of the panel	Return data: 3 (ECO)+41(DATA)+2(CS)= 46 Byte

Data Arrangement		Data Length	Output Example
ECO		3 Byte	QAJ
1	V-SUS adjustment value	3 Byte	128
2	V-OFT adjustment value	3 Byte	128
3	V-RST-P adjustment value	3 Byte	128
4	Reserved	3 Byte	***
5	XSB adjustment value	3 Byte	128
6	YSB adjustment value	3 Byte	128
7	YTG adjustment value	3 Byte	128
8	YTW adjustment value	3 Byte	128
9	RSW adjustment value	3 Byte	128
10	YTB adjustment value	3 Byte	128
11	RYW adjustment value	3 Byte	128
12	R-REVISE setting value	1 Byte	0
13	G-REVISE setting value	1 Byte	0
14	B-REVISE setting value	1 Byte	0
CS		2 Byte	B7

• For each REVISE setting value, the level set for RRL, RGL, or RBL is transmitted as one character.

9.3.5 QPW

■ Acquisition of ABL/WB adjustment data • • • [QPW]

The command QPW is for acquiring data on the panel's factory-preset items whose memory tables are changed in sequence.

Command Format	Effective Operation Modes	Function	Remarks
[QPW]	All operations	To acquire data on operations of the panel	Return data: 3 (ECO)+35(DATA)+2(CS)= 40 Byte

Data Arrangement		Data Length	Output Example
ECO		3 Byte	QPW
1	Drive sequence	3 Byte	60V
2	Standard/nonstandard	1 Byte	S
3	Type of ABL/WB tables	2 Byte	T2
4	ABL adjustment value	3 Byte	128
5	R-HIGH adjustment value	3 Byte	256
6	G-HIGH adjustment value	3 Byte	256
7	B-HIGH adjustment value	3 Byte	256
8	R-LOW adjustment value	3 Byte	512
9	G-LOW adjustment value	3 Byte	512
10	B-LOW adjustment value	3 Byte	512
11	Gamma setting	1 Byte	A
12	Streaking correction	1 Byte	1
13	Peripheral luminance correction	1 Byte	0
14	Reserved	1 Byte	*
15	WB interlocked with APL	1 Byte	0
16	Transition of protective operations	1 Byte	0
17	Reserved	2 Byte	**
CS		2 Byte	37

1: Drive sequence	
48V	Video 48 Hz
50V	Video 50 Hz
60V	Video 60 Hz
72V	Video 72 Hz
75V	Video 75 Hz
60P	PC 60 Hz
70P	PC 70 Hz

2: Standard/ nonstandard	
S	Standard
N	Nonstandard

3: Type of ABL/WB tables	
Tn	n: 1 to 4

11: Gamma setting	
n	0 to F

12, 15: Setting for Items 12 and 15	
0	OFF
1	ON

13: Peripheral luminance correction	
0	OFF
2	ON (interlocked with APL)

16: Transition of brightness by protective operations	
0	Upper limit state for brightness
1	Brightness being reduced
2	Lower limit state for brightness
3	Brightness being increased

9.3.6 QPM

■ Acquisition of parameters • • • [QPM]

The command QPM is for acquiring the accumulated number of pulses for each of 5 blocks from the EEPROM.

Command Format	Effective Operation Modes	Function	Remarks
[QPM]	All operations	To acquire data on operations of the panel	Return data: 3 (ECO)+40(DATA)+2(CS)= 45 Byte

Data Arrangement		Data Length	Output Example
ECO		3Byte	QPM
1	Pulse meter B 1	8Byte	00000000
2	Pulse meter B 2	8Byte	00000000
3	Pulse meter B 3	8Byte	00000000
4	Pulse meter B 4	8Byte	00000000
5	Pulse meter B 5	8Byte	00000000
CS		2Byte	E7

• The high-order 3 bytes stored in memory as pulse-meter counts for the 5 blocks are multiplied by 256 to be converted to decimal, then the high-order 8 digits (the low-order 2 digits rounded off) are transmitted (the unit for response value is million pulses).

9.3.7 QPD

■ Acquisition of PD logs • • • [QPD]

The command QPD is for acquiring data from the 8 latest power-down (PD) logs.

Command Format	Effective Operation Modes	Function	Remarks
[QPD]	All operations	To acquire data on the power-down logs	Return data: 3 (ECO)+80(DATA)+2(CS)= 85 Byte

Data Arrangement		Data Length	Output Example
ECO		3 Byte	QPD
1	Latest "1st PD" data	1 Byte	A
2	Latest "2nd PD" data	1 Byte	2
3	Data from the hour meter for the latest PD	8 Byte	00010020
4	Second latest "1st PD" data	1 Byte	E
5	Second latest "2nd PD" data	1 Byte	9
6	Data from the hour meter for the second latest PD	8 Byte	00008523
7	Third latest "1st PD" data	1 Byte	4
8	Third latest "2nd PD" data	1 Byte	3
9	Data from the hour meter for the third latest PD	8 Byte	00004335
10	Fourth latest "1st PD" data	1 Byte	2
11	Fourth latest "2nd PD" data	1 Byte	0
12	Data from the hour meter for the fourth latest PD	8 Byte	00000945
13	Fifth latest "1st PD" data	1 Byte	4
14	Fifth latest "2nd PD" data	1 Byte	0
15	Data from the hour meter for the fifth latest PD	8 Byte	00000715
16	Sixth latest "1st PD" data	1 Byte	A
17	Sixth latest "2nd PD" data	1 Byte	2
18	Data from the hour meter for the sixth latest PD	8 Byte	00000552
19	Seventh latest "1st PD" data	1 Byte	A
20	Seventh latest "2nd PD" data	1 Byte	0
21	Data from the hour meter for the seventh latest PD	8 Byte	00000213
22	Eighth latest "1st PD" data	1 Byte	D
23	Eighth latest "2nd PD" data	1 Byte	0
24	Data from the hour meter for the eighth latest PD	8 Byte	000001A7
CS		2 Byte	27

1, 2, 4, 5: PD data	
0	No PD
1	Not used
2	P-POWER
3	SCAN
4	SCN-5V
5	Y-DRIVE
6	Y-DCDC
7	Y-SUS
8	Address
9	X-DRIVE
A	X-DCDC
B	X-SUS
C	Not used
D	Not used
E	Not used
F	UNKNOWN

9.3.8 QSD

■ Acquisition of SD logs • • • [QSD]

The command QSD is for acquiring the data from the 8 latest shutdown (SD) logs on the FHD DIGITAL Assy.

Command Format	Effective Operation Modes	Function	Remarks
[QSD]	All operations	To acquire data on the shutdown logs	Return data: 3 (ECO)+80(DATA)+2(CS)= 85 Byte

Data Arrangement		Data Length	Output Example
ECO		3Byte	QSD
1	Latest SD data	1byte	1
2	Latest SD subcategory data	1byte	0
3	Data from the hour meter for the latest SD	8byte	00752013
4	Second latest SD data	1byte	5
5	Second latest SD subcategory data	1byte	0
6	Data from the hour meter for the second latest SD	8byte	00495204
7	Third latest SD data	1byte	2
8	Third latest SD subcategory data	1byte	3
9	Data from the hour meter for the third latest SD	8byte	00100355
10	Fourth latest SD data	1byte	2
11	Fourth latest SD subcategory data	1byte	5
12	Data from the hour meter for the fourth latest SD	8byte	00075620
13	Fifth latest SD data	1byte	1
14	Fifth latest SD subcategory data	1byte	0
15	Data from the hour meter for the fifth latest SD	8byte	00000852
16	Sixth latest SD data	1byte	2
17	Sixth latest SD subcategory data	1byte	5
18	Data from the hour meter for the sixth latest SD	8byte	000000451
19	Seventh latest SD data	1byte	0
20	Seventh latest SD subcategory data	1byte	0
21	Data from the hour meter for the seventh latest SD	8byte	00000000
22	Eighth latest SD data	1byte	0
23	Eighth latest SD subcategory data	1byte	0
24	Data from the hour meter for the eighth latest SD	8byte	00000000
CS		2Byte	7D

● SD data	
0	No SD
1	SQ-IC
2	MDU-IIC
3	RST2
4	TEMP

● SD subcategory (SQ-IC)	
0	No SD-Sub data
1	Communication error (LR)
2	Drive stop (LR)
3	BUSY
4	Communication error (L)
5	Drive stop (L)
6	Incoherent versions (H/S)
7	Incoherent versions (L/R)
8	Not used
9	Communication error (R)
A	Drive stop (R)

● SD subcategory (MDU-IIC)	
0	No SD-Sub data
1	EEPROM
2	BACKUP
3	DAC

● SD subcategory (TEMP)	
0	No SD-Sub data
1	TEMP1
2	Reserved

9.3.9 QMT

QMT: Returning information of the main side temperature and FAN operation.

Command	Effective Operation Modes	Function	Remarks
QMT	Continually	Status output	Return data : 9 byte

Data Content		Size	Example
ECO		3 byte	QMT only
1	TEMP2	3 byte	000
2	FAN (rotary speed)	1 byte	0

FAN (rotary speed)	
0	STOP
1	LOW
2	HIGH
3	MIDDLE

9.3.10 QNG

QNG: Returning data (logs keep on Main microcomputer) on shutdown of the main microcomputer.

Command	Effective Operation Modes	Function	Remarks
QNG	Continually	Status output	Return data : 101 byte

Order	Data	Size	Context
ECO		3 byte	QNG only
1	Latest NG data	1 byte	0
2	Data of subcategory for the latest NG	1 byte	0
3	Data of Hour meter for the latest NG	7 byte	0000000
4	Data of temperature (TEMP2) for the latest NG	3 byte	000
5	2nd latest NG data	1 byte	0
6	Data of subcategory for the 2nd latest NG	1 byte	0
7	Data of Hour meter for the 2nd latest NG	7 byte	0000000
8	Data of temperature (TEMP2) for the 2nd latest NG	3 byte	000
9	3rd latest NG data	1 byte	0
10	Data of subcategory for the 3rd latest NG	1 byte	0
11	Data of Hour meter for the 3rd latest NG	7 byte	0000000
12	Data of temperature (TEMP2) for the 3rd latest NG	3 byte	000
13	4th latest NG data	1 byte	0
14	Data of subcategory for the 4th latest NG	1 byte	0
15	Data of Hour meter for the 4th latest NG	7 byte	0000000
16	Data of temperature (TEMP2) for the 4th latest NG	3 byte	000
17	5th latest NG data	1 byte	0
18	Data of subcategory for the 5th latest NG	1 byte	0
19	Data of Hour meter for the 5th latest NG	7 byte	0000000
20	Data of temperature (TEMP2) for the 5th latest NG	3 byte	000
21	6th latest NG data	1 byte	0
22	Data of subcategory for the 6th latest NG	1 byte	0
23	Data of Hour meter for the 6th latest NG	7 byte	0000000
24	Data of temperature (TEMP2) for the 6th latest NG	3 byte	000
25	7th latest NG data	1 byte	0
26	Data of subcategory for the 7th latest NG	1 byte	0
27	Data of Hour meter for the 7th latest NG	7 byte	0000000
28	Data of temperature (TEMP2) for the 7th latest NG	3 byte	000
29	8th latest NG data	1 byte	0
30	Data of subcategory for the 8th latest NG	1 byte	0
31	Data of Hour meter for the 8th latest NG	7 byte	0000000
32	Data of temperature (TEMP2) for the 8th latest NG	3 byte	000
CS		2 byte	77

• Details on the NG data and subcategory

Data	Cause of Shutdown	Remarks
0	Normal	
1	Communication failure of Module microcomputer	
2	3-wire Serial Communication failure of Main microcomputer.	Subcategory ⇒ 1
3	IIC Communication failure of Main microcomputer	Subcategory ⇒ 2
4	Communication failure of Main microcomputer & Unknown Error	
5	Fan stopped	
6	Abnormally high temperature of MTB section	
8	Abnormally in ASIC power (POWER)	Subcategory ⇒ 3
B	Short circuit the speaker	

Subcategory of NG

=> 1: Data on Subcategories for failure in 3-wire serial communication of Main microcomputer

Data	Cause of Shutdown	Remarks
2	Multi processor main communication failure (MULIT1)	
4	Multi processor communication failure (I/P)	
6	Multi processor sub communication failure (SLAVE)	
7	Main communication failure (FPGA1)	
8	Multi processor communication failure (FPGA2)	

Subcategory of NG

=> 2: Data on Subcategories for failure in IIC communication of Main microcomputer

Data	Cause of Shutdown	Remarks
0	Non subcategory	
4	AV Switch	
5	RGB Switch	
8	Main VDEC	
9	Sub VDEC	
A	AD/PLL	
B	HDMI	
G	64K EEPROM	
H	AUDIO IC	
K	DVI Receiver	
L	AUDIO Switch	
M	VOLUME IC	

Subcategory of NG

=> 3: Data on Subcategories for failure in the ASIC power (POWER)

Data	Cause of Shutdown	Remarks
1	DCDC converter reduce voltage (M-DCDC)	
2	Relay power reduce voltage (RELAY)	

9.3.11 QSI

■ Acquisition of input signal data • • • [QSI]

The command QSI is for acquiring all data on input video signals.

Command Format	Effective Operation Modes	Function	Remarks
[QSI]	All operations	To acquire all data on input video signals	Return data: 3 (ECO)+66(DATA)+2(CS)= 71 Byte

Data Arrangement		Data Length	Output Example
ECO		3 Byte	QSI
1	Type of drive sequence	3 Byte	60V
2	Standard/nonstandard	1 Byte	S
3	Type of ABL/WB tables	2 Byte	T1
4	Total value of PCN	4 Byte	0256
5	Total value of PRH	4 Byte	0256
6	Total value of PGH	4 Byte	0256
7	Total value of PBH	4 Byte	0256
8	Total value of PBR	4 Byte	0512
9	Total value of PRL	4 Byte	0512
10	Total value of PGL	4 Byte	0512
11	Total value of PBL	4 Byte	0512
12	Total value of ABL	3 Byte	128
13	Detection of V frequency	4 Byte	6002
14	Detection of existence of H	1 Byte	Y
15	Reserved	3 Byte	***
16	Obtained APL data	4 Byte	1023
17	Number of SUS pulses	4 Byte	0457
18	Result of detection of still picture	1 Byte	1
19	Result of detection of cracking in the panel	1 Byte	1
20	Result of detection for scanning protection	1 Byte	1
21	Result of detection for external protection	1 Byte	1
22	Transition of protection operation	1 Byte	0
23	Reserved	4 Byte	****
CS		2 Byte	27

14: Detection of existence of H

N	No H
Y	H detected

18 to 20: Each protection operation status

0	Setting OFF
1	Setting ON (waiting)
2	Setting ON (during operation)

22: Transition of brightness by protection operation

0	Upper limit state for brightness
1	Brightness being reduced
2	Lower limit state for brightness
3	Brightness being increased

- If data for an item cannot be obtained during Standby mode, the return data for that item will be "∗."
- The types of data for Items 1-3 in the table (drive sequence, standard/nonstandard, and type of ABL/WB tables) are the same as with the command QPW.
- Each total value for Items 4-11 represents that of panel WB, user WB, and degradation correction, and the actual data being sent to the ASTRA are output.
- Detection of V frequency: The V signal input to the panel is measured in the range of 30.51 to 99.99 Hz. The measured value is multiplied by 100 and then output.
- Number of SUS pulses : The number is calculated from data from APL and the drive sequence. The output value must be between 0174 and 2752.
- APL value: The APL value for the input video signal (or mask indication) will be output in the range of 0000 to 1023.

9.3.12 DRV

● **DRV**

Drive ON/OFF: To turn on or off only the high-power system

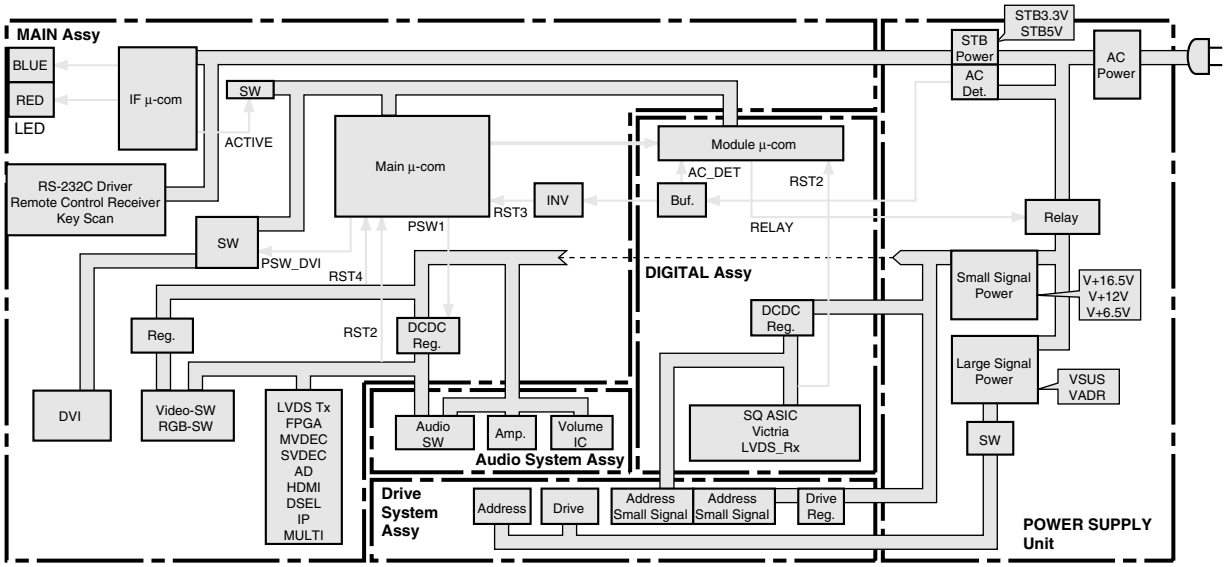
Command	Effective Operation Modes	Operation	Remarks
DRV+S00	For details on how to issue a command during normal operation modes, including Standby mode, see 9.2.	Drive OFF	Issue the next command within 10 seconds after the DRV+S00 commands are issued.
DRV+S01		Drive ON	

10. GENERAL INFORMATION
10.1 POWER SUPPLY PROCESS DIAGRAM

■ Configuration of the Power System -Power-on status in each mode-

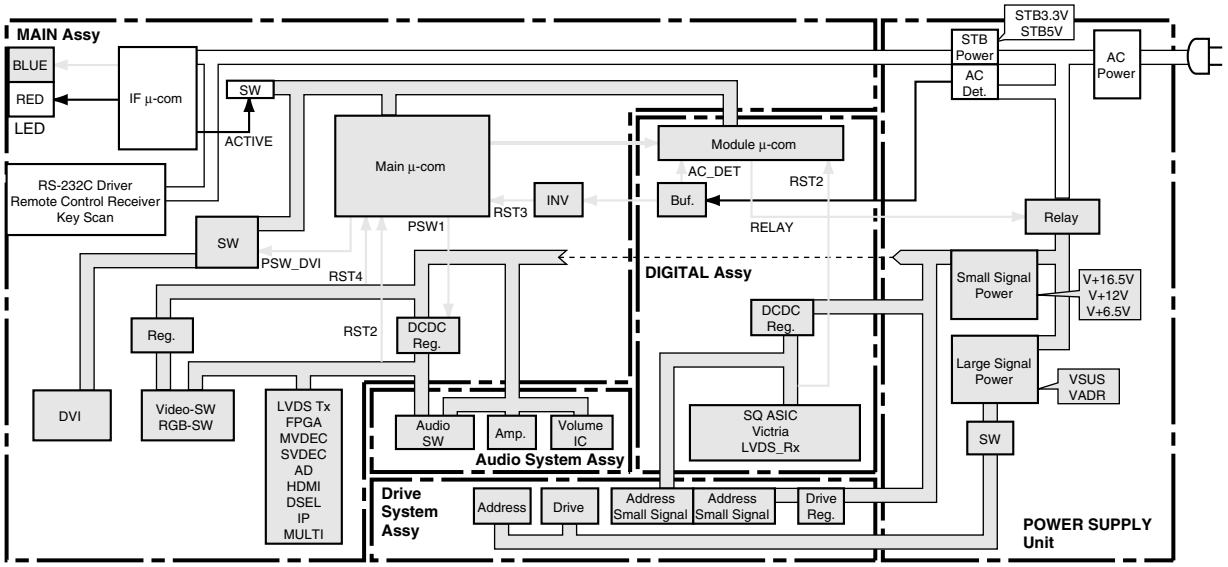
① Unplugging of the AC power cord and/or power shutoff at the MAIN POWER switch

Status: No AC power is supplied to the unit at all.
Transition to another mode:
- Plugging in of the AC power cord (AC power is supplied): Shifting to status ③.
- Setting of the MAIN POWER switch to ON (AC power is supplied): Shifting to status ③.



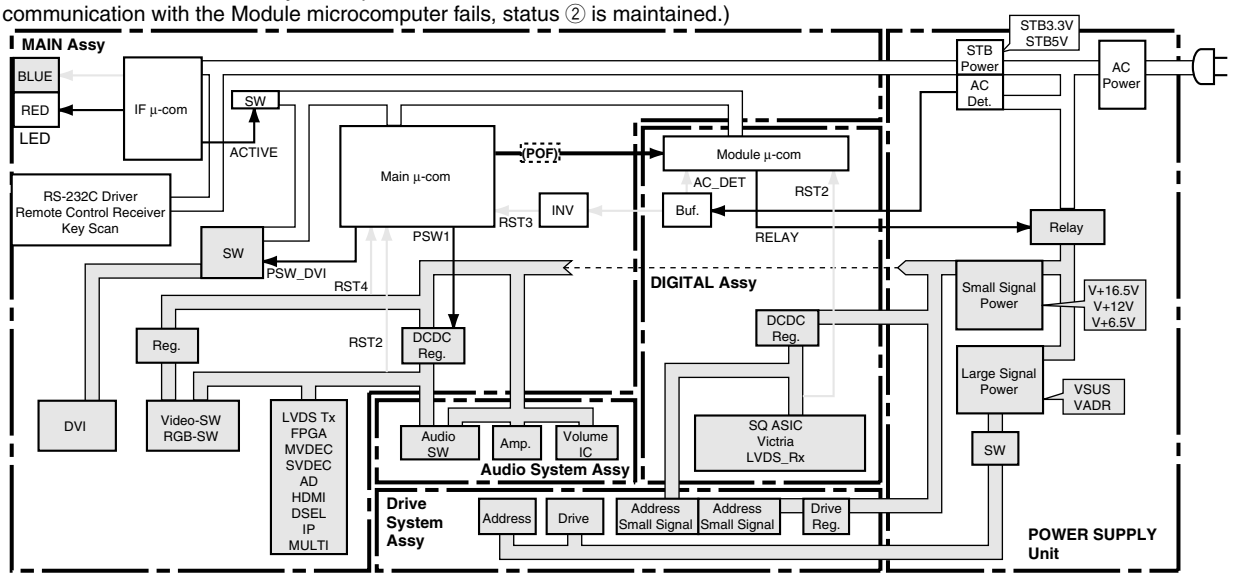
② Passive Standby mode

Status: Power is supplied to only the IF microcomputer and part of its surrounding circuits. The standby mode in most cases is Passive Standby mode.
Operation: The IF microcomputer deactivates the Active port to "L" (OFF) and the SW to OFF, in order to turn off the power to the Main microcomputer and the Module microcomputer.
Transition to another mode:
- Unplugging of the AC power cord: Shifting to status ①.
- Setting of the MAIN POWER switch to OFF: Shifting to status ①.
- User operation (using a remote control unit or a side key): Shifting to status ③ (to notify the Main microcomputer). Then, shifting to status ④, if required



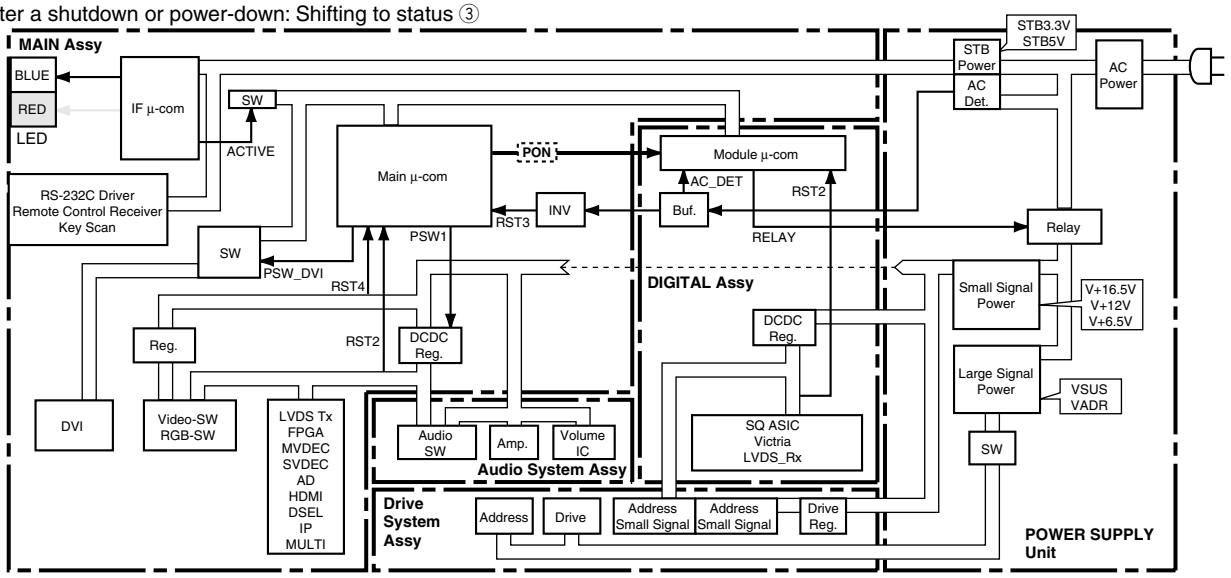
③ Active Standby mode

Status: Power is supplied to the IF microcomputer, Main microcomputer, Module microcomputer, and their surrounding circuits.
Operation:
In a case of shifting from status ②:
The IF microcomputer activates the Active port to "H" (ON) and the SW to ON, in order to supply power to the Standby circuitry.
In a case of shifting from status ④:
Main microcomputer: It issues the POF command to the Module microcomputer.
Module microcomputer: After receiving the POF command from the Main microcomputer, it deactivates the RELAY port to "L" (OFF) in order to turn off the relay circuit in the POWER SUPPLY Unit.
Transition to another mode:
- Unplugging of the AC power cord: Shifting to status ①.
- Setting of the MAIN POWER switch to OFF: Shifting to status ①.
- Setting of the POWER switch to ON: Shifting to status ④.
- No user operation for about 10 seconds: Shifting to status ②. However, after a shutdown or power-down, Active Standby mode will be maintained in the absence of any user operation for more than 10 seconds.
(If communication with the Module microcomputer fails, status ② is maintained.)



④ POWER ON

Status: Power is supplied to all circuits. Normal operation mode
Operation:
In a case of shifting from status ③:
Main microcomputer: It issues the PON command to the Module microcomputer. It activates the PSW1 port to "L" (ON) in order to supply power to all the circuits in the MAIN Assy.
Module microcomputer: After receiving the PON command from the Main microcomputer, it activates the RELAY port to "H" (ON) in order to turn on the relay circuit in the POWER SUPPLY Unit and supply power to all the circuits in the DIGITAL Assy.
Transition to another mode:
- Unplugging of the AC power cord: Shifting to status ①
- Setting of the MAIN POWER switch to OFF: Shifting to status ①
- Setting of the POWER switch to OFF: Shifting to status ② via status ③.
- After a shutdown or power-down: Shifting to status ③



10.2 POWER ON/OFF FUNCTION FOR THE LARGE-SIGNAL SYSTEM

Function:

To prevent a power-down from being generated, operation of only the digital-signal processing is enabled, and power is not supplied to the panel driving system (large-signal system).

Usage:

1. In a case where a check is required of signals' being correctly output to the driving systems during a repair, etc.
2. In a case where diagnosis is required for judging whether the power-down occurred in the large-signal system or small-signal system.

Procedures:

1. Set the slider switch on the 50FHD X DRIVE Assy (see Fig) to the far right position.
2. Issue the "DRV S00" RS-232C command. (To cancel, use the "DRV S01" command.)
   For details on how to issue an RS-232C command during Standby mode, see "About RS-232C commands during Standby mode," 9.1.1 DESCRIPTION OF RS-232C COMMAND."
3. Proceed as follows, using the remote control unit for servicing:

   Press any key other than the Standby key during Standby mode.
   (This is because the main microcomputer does not accept the first keypress.)
   ↓ (Within 10 seconds)
   Press the DRIVE ON/OFF key.
   ↓ (Within 10 seconds)
   Press the Standby key to start up the unit.

Notes:

- When the power to the large-signal system is off, as the PD signal is muted, power-downs other than PS_PD are not activated.
- Although the "DRV S00/S01" RS-232C commands are valid during Standby mode, once the main power is turned off, the unit will return to "DRV S01" (for canceling the function). Some special procedures are required.
  See "9.1.1 DESCRIPTION OF RS-232C COMMAND."
- To turn the drive off using the remote control unit for servicing, press the DRIVE ON/OFF key twice within 10 seconds, then within 10 seconds press the POWER key to turn the unit on.
- The remote control unit for servicing only turns off the drive but cannot turn it on.
- It is possible to turn the drive off (either by using the remote control unit for servicing or by issuing the appropriate RS-232C command) while the unit has a picture displayed. However, as it may damage the unit, turn the drive off during Standby mode activated using the remote control unit. (A power-down may occur.)
- NEVER turn on the large signal system by using the Drive OFF switch while the power is ON, as doing so would damage the unit.

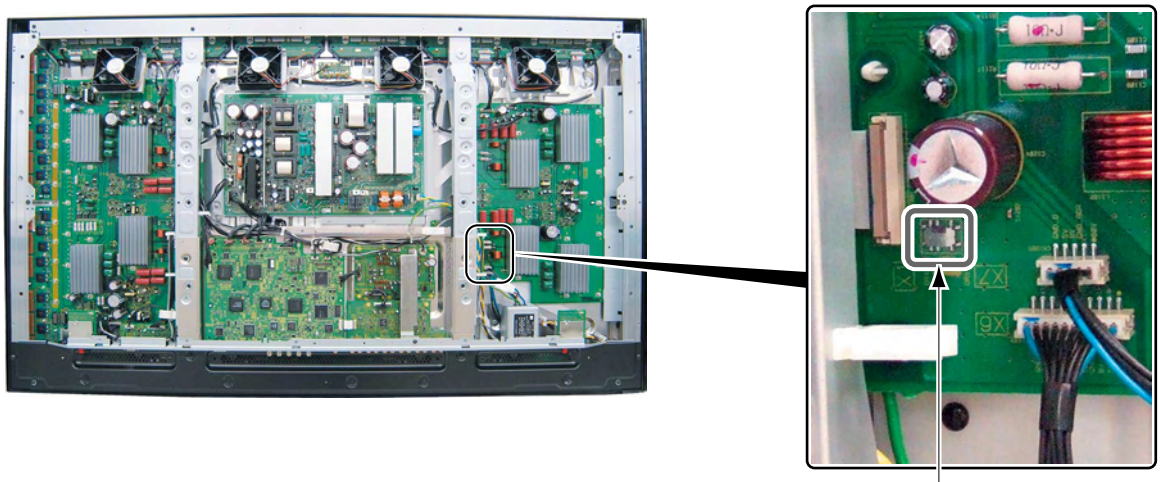
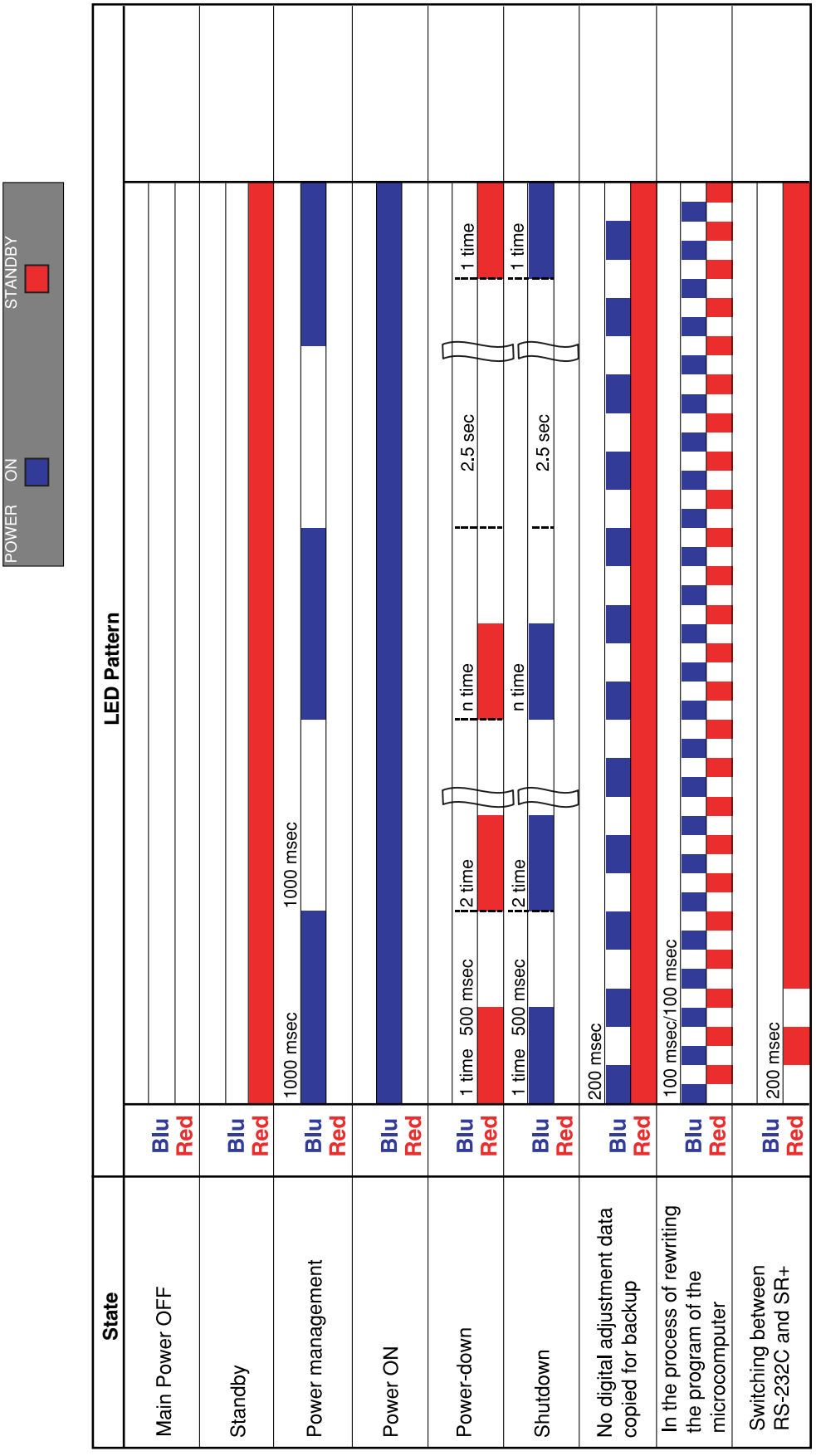


Fig. Drive OFF Position

10.3 LED INFORMATION

LED Pattern

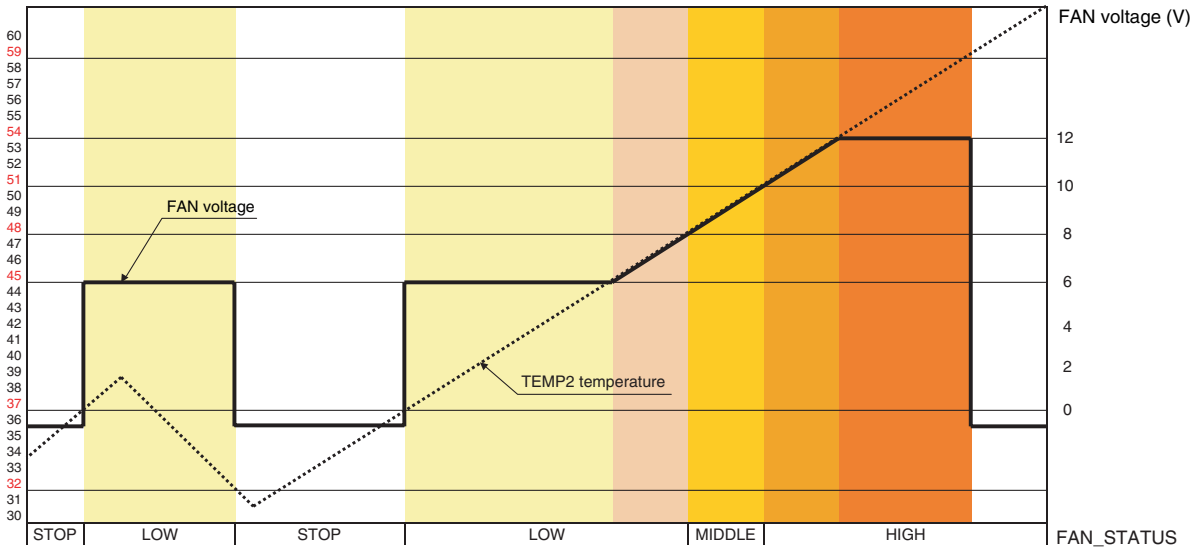


10.4 SPECIFICATIONS ON TEMPERATURE SENSOR DETECTION AND DRIVING OF THE FAN

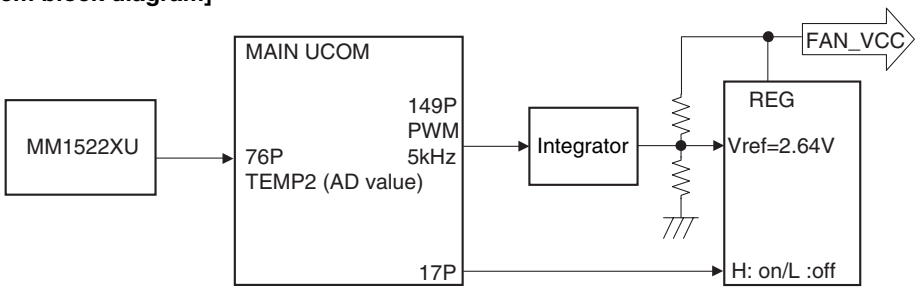
Specifications on temperature sensor detection and driving of the fan

- The power must be turned on or off with hysteresis.
- The measured value of the sensor inside the panel is indicated.
  According to where and how the unit is installed, there may be a difference between the measured sensor temperature and the ambient temperature.

[Reading of the sensor and driving of the fan]



[System block diagram]



[Conversion formulae]

TEMP2 (Celsius: C) = 0.32258 x A/D value (10 bit_data) - 52
TEMP2 (Fahrenheit: F) = 1.8 x TEMP2 (Celsius: C) + 32

[FAN_CONT operation]

OFF to ON: If the A/D value of the detected temperature is more than 275, the fan is turned on.
ON to OFF: If the A/D value of the detected temperature is less than 261, the fan is turned off.

[FAN_STATUS operation]

STOP: The fan is not activated if the A/D value of the detected temperature is less than 276.
The fan stops rotating if the A/D value of the detected temperature falls to below 261.
LOW: The fan starts rotating at a low speed if the A/D value of the detected temperature becomes 276 or more but 309 or less.
The rotation speed becomes low if the A/D value of the detected temperature falls to 261 or more but 309 or less.
MIDDLE: The fan starts rotating at a medium speed if the A/D value of the detected temperature becomes 310 or more but 319 or less.
HIGH: The fan starts rotating at a high speed if the A/D value of the detected temperature becomes 320 or more but 344 or less.

11. SPECIFICATIONS

11.1 MAIN SPECIFICATIONS

Number of Pixels		1920 x 1080 pixels
Audio Amplifier		13 W + 13 W (1 kHz, 10 %, 8 W)
Surround System		SRS/FOCUS/TruBass
Power Requirement		110 V to 240 V AC, 50 Hz/60 Hz, 420 W (0.4 W Standby)
Dimensions		1282 mm (W) x 750.5 mm (H) x 98 mm (D)
Weight		39.8 kg
Color System		PAL/SECAM/NTSC 3.58/NTSC 4.43/PAL 60
Terminals	INPUT1	DVI (DVI-D)
	INPUT2	HDMI*1
	INPUT3	HDMI*1
	INPUT4	BNC (COMPONENT VIDEO or ANALOG RGB)
	INPUT5	S-VIDEO
	INPUT6	VIDEO

*1 This conforms to HDMI1.1 and HDCP1.1.
HDMI (High Definition Multimedia Interface) is a digital interface that handles both video and audio using a single cable.
HDCP (High-bandwidth Digital Content Protection) is a technology used to protect copyrighted digital contents that use the Digital Visual Interface (DVI).

- Design and specifications are subject to change without notice.

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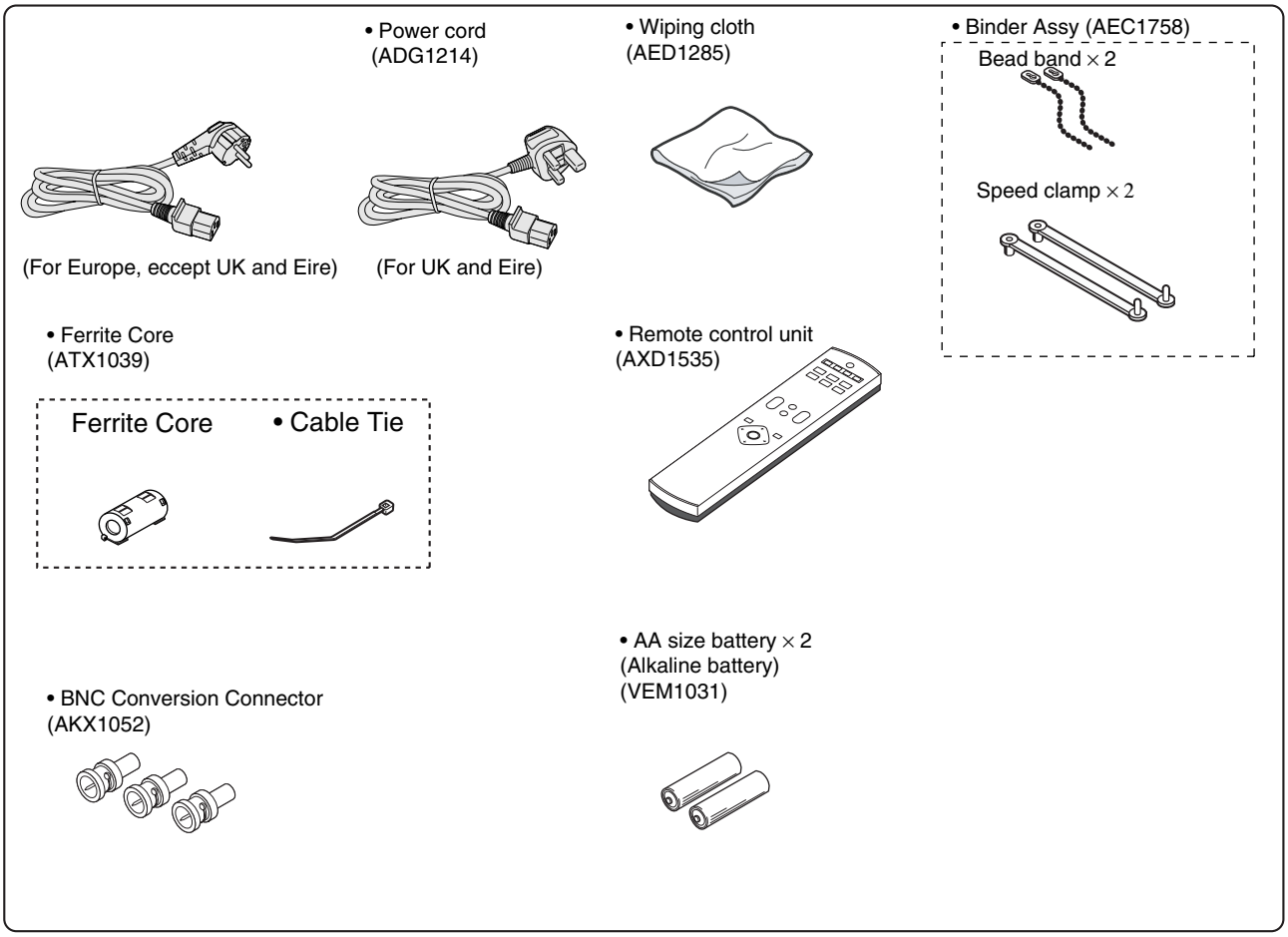
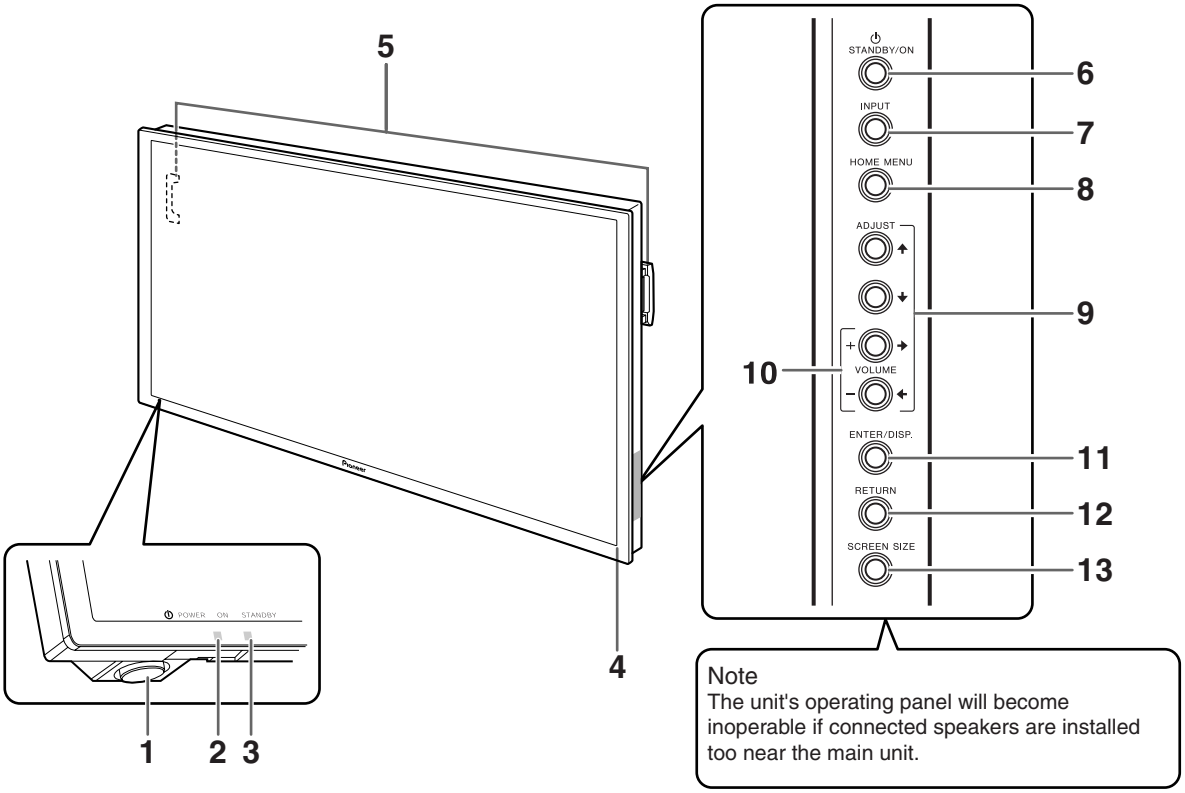
11.2 ACCESSORIES

● **Accessories**



11.3 PANEL FACILITIES

• Main unit



1 MAIN POWER switch
Use to switch the main power of the unit on and off.

2 ON indicator

3 STANDBY indicator

4 Remote control sensor

5 Handles

6 ⏻ STANDBY/ON button

7 INPUT button

8 HOME MENU button

9 ADJUST (⬆/⬇/➡/⬅) buttons

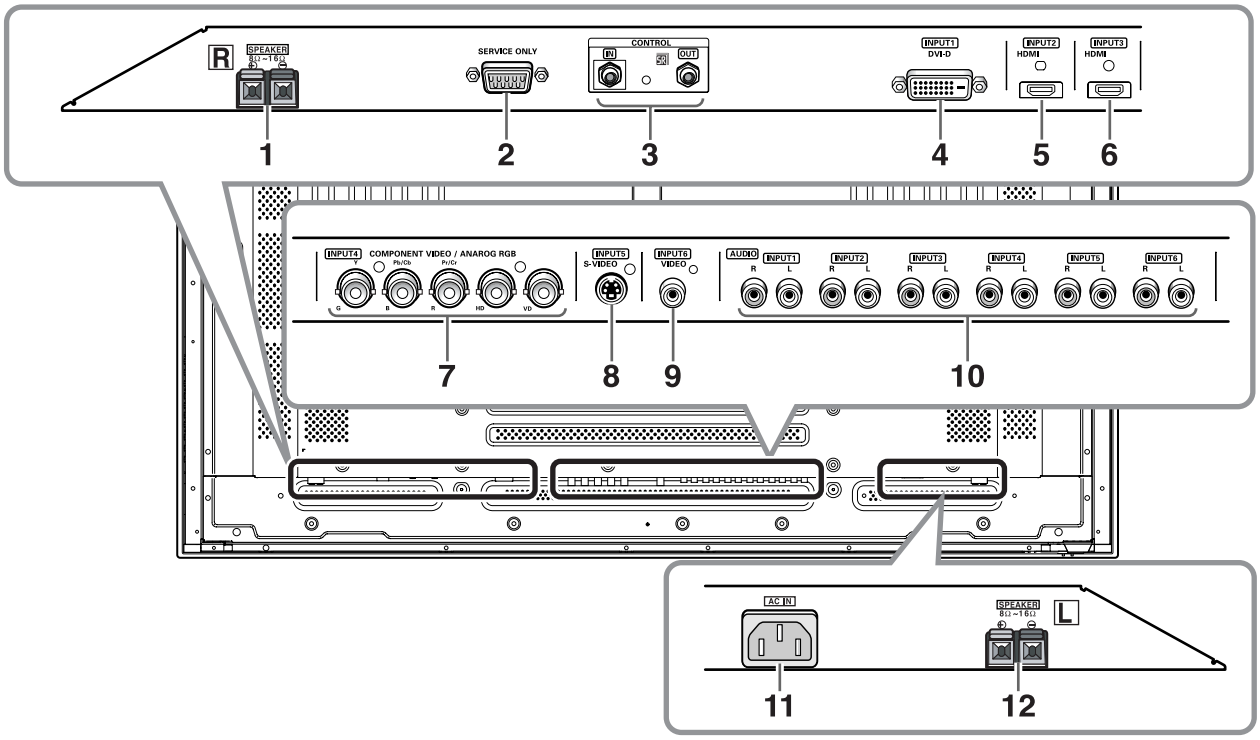
10 VOLUME +/- buttons

11 ENTER/DISP. button

12 RETURN button

13 SCREEN SIZE button

• **Connection panel**



1 SPEAKER (R) terminals
For connection of an external right speaker.
Connect a speaker that has an impedance of 8 Ω to16 Ω.

2 Terminal for Service Adjustments (used for factory setup)
Never connect any component to these connectors without first consulting your Pioneer installation technician.
These connectors are used for Plasma Display setup adjustments.

3 CONTROL IN/OUT terminals

4 INPUT1 terminal (DVI-D)

5 INPUT2 terminal (HDMI)

6 INPUT3 terminal (HDMI)

7 INPUT4 terminals
(COMPONENT VIDEO: Y, Pb/Cb, Pr/Cr,
ANALOG RGB : G, B, R ,HD, VD)

8 INPUT5 terminal (S-VIDEO)
For connection of components that have an S-video output jack such as a decoder, VCR, game console or camcorder.

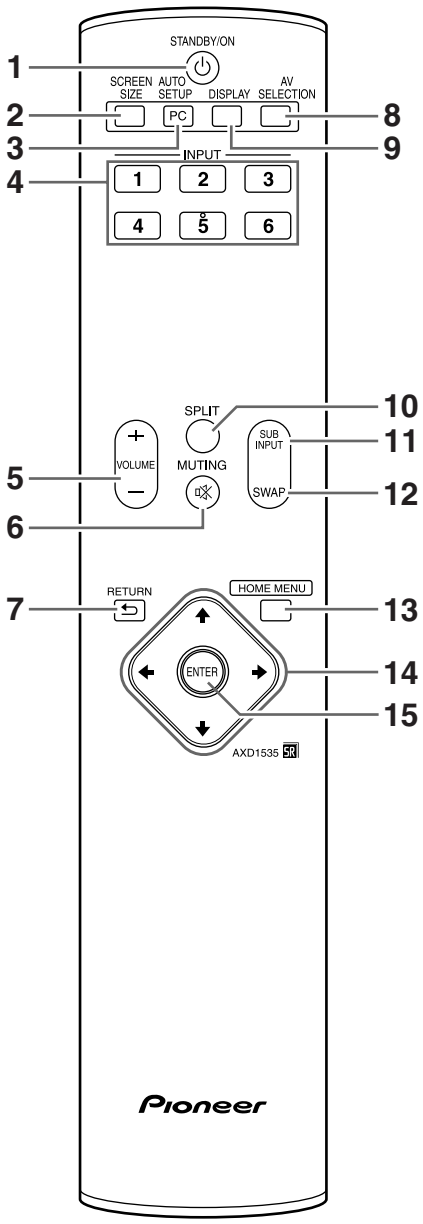
9 INPUT6 terminal (VIDEO)

10 AUDIO INPUT terminals
Audio input connectors corresponding to INPUT1 to INPUT6 video input connectors.

11 AC IN
Use to connect the supplied power cord to an AC outlet.

12 SPEAKER (L) terminals
For connection of an external left speaker. Connect a speaker that has an impedance of 8 Ω to 16 Ω.

• **Remote control unit**



1 STANDBY/ON button
Press to put the unit in operation or standby mode .

2 SCREEN SIZE button
Press to select the screen size .

3 PC AUTO SET UP button
When using computer signal input, automatically sets the "Position", "Clock" and "Phase" to optimum values .

4 INPUT 1 to **6** buttons
Press to select the input.

5 VOLUME (**+/–**) buttons
Use to adjust the volume .

6 MUTING button
Press to mute the volume.

7 RETURN button
Restores the previous menu screen.

8 AV SELECTION button
Use to select the AV function .

9 DISPLAY button
Press to view the unit's current input and setup mode.

10 SPLIT button
Press to switch to multi-screen display.

11 SUB INPUT button
During multi-screen display, use this button to change inputs to subscreens .

12 SWAP button
During multi-screen display, use this button to switch between main screen and subscreen .

13 HOME MENU button
Press to open and close the on-screen menu .

14 ADJUST (↑/↓/←/→) buttons
Use to navigate menu screens and to adjust various settings on the unit.

15 ENTER button
Press to adjust or enter various settings on the unit .

12. IC INFORMATION

• The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

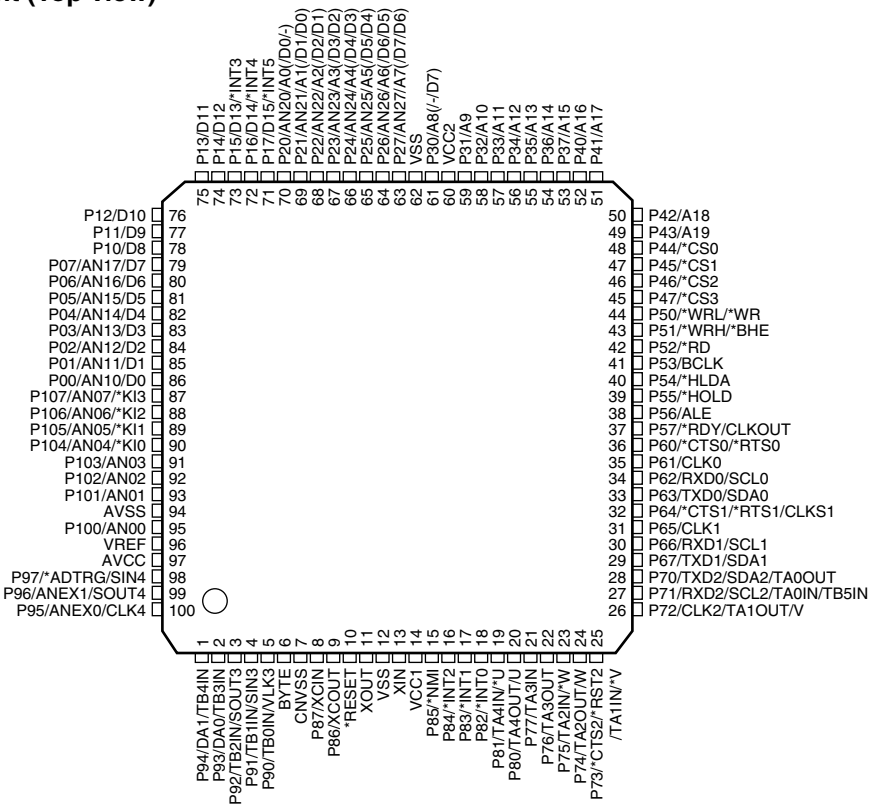
● **List of IC**

AGC1015, CY25561SXC, PEE004A, THC63LVD104S, AGC1005, AXY1136, EP2C20F484C8N, MB91305PMC-G-BND
SII9023CTU-K, NJU26901E2, AXF1159, AXF1160, AXF1161

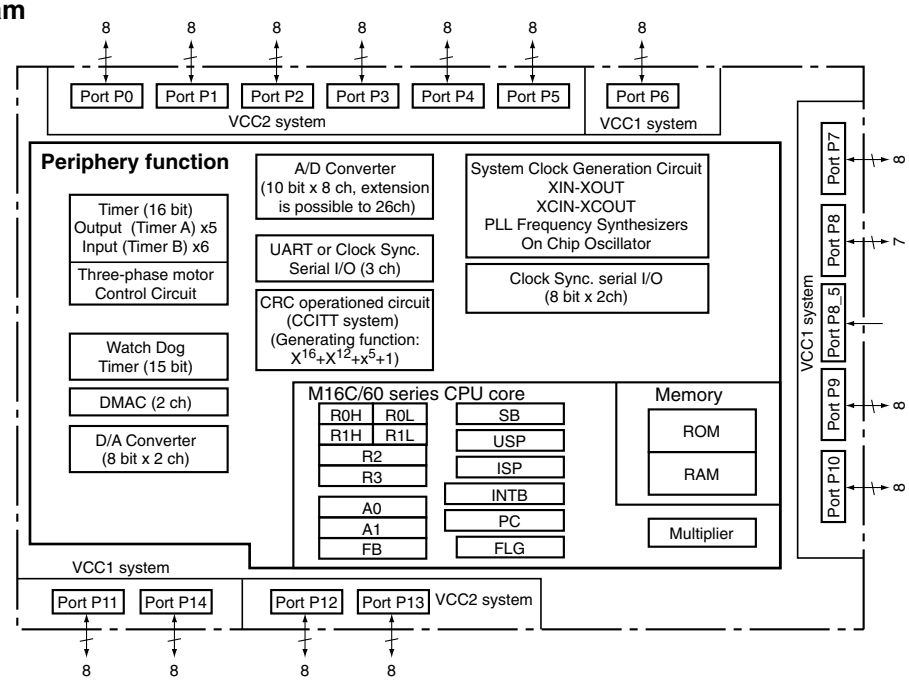
■ AGC1015 (FHD DIGITAL ASSY: IC3703)

• Module Microcomputer

● **Pin Arrangement (Top view)**



● **Block Diagram**



● Pin Function

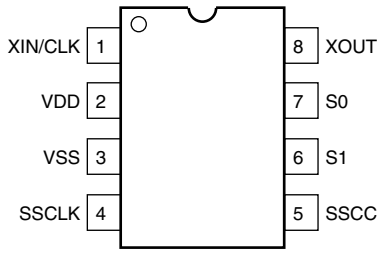
No.	Mark	Pin Name	I/O	Active	Pin Function
1	P94/DA1/TB4IN	V_SYNC	I	L	V sync distinction
2	P93/DA0/TB3IN	–	O		
3	P92/TB2IN/SOUT3	TXD_SQ	O		Serial communication with SQ IC (IC3201 and IC3301) Data transmission
4	P91/TB1IN/SIN3	RXD_AL	I	–	Serial communication with SQ IC (IC3201) Data reception
5	P90/TB0IN/VLK3	CLK_SQ	O		Serial communication with SQ IC (IC3201 and IC3301) Clock output
6	BYTE	BYTE	I		(GND connection)
7	CNVSS	CNVSS	I		For processor mode setting
8	P87/XCIN	–	O		
9	P86/XCOUT	–	O		
10	*RESET	RST_MD	I	L	Reset input
11	XOUT	XOUT	O		Output for main clock
12	VSS	VSS	–		GND
13	XIN	XIN	I		Input for main clock
14	VCC1	VCC1	–		STB3.3V
15	P85/*NMI	NMI	I		(Pull-up with power)
16	P84/*INT2	–	O		
17	P83/*INT1	AEM_SQ	I	H	Address emergency input
18	P82/*INT0	RST2	I	L	Reset detection of SQ IC (IC3201 and IC3301)
19	P81/TA4IN/*U	STOP_AR	I	H	Drive stopping monitor of SQ IC (IC3301)
20	P80/TA4OUT/U	AR_FUT	I	H	(Reserved) Input for SQ IC (IC3301)
21	P77/TA3IN	STOP_AL	I	H	Drive stopping monitor of SQ IC (IC3201)
22	P76/TA3OUT	–	O		
23	P75/TA2IN/*W	–	O		
24	P74/TA2OUT/W	–	O		
25	P73/*CTS2/*RST2/TA1IN/*V	–	O		
26	P72/CLK2/TA1OUT/V	EEPRST	O	H	EEPROM power SW
27	P71/RXD2/SCL2/TA0IN/TB5IN	E_SCL	O		IIC clock output for EEPROM
28	P70/TXD2/SDA2/TA0OUT	E_SDA	I/O		IIC data input/output for EEPROM
29	P67/TXD1/SDA1	TXD	O		Communication with flash ROM writer Data transmission
30	P66/RXD1/SCL1	RXD	I		Communication with flash ROM writer Data reception
31	P65/CLK1	SCLK	I		Communication with flash ROM writer Clock input
32	P64/*CTS1/*RTS1/CLKS1	BUSY	O		Communication with flash ROM writer busy output
33	P63/TXD0/SDA0	RXD_MD	O		UART communication with main microcomputer Data transmission
34	P62/RXD0/SCL0	TXD_MD	I		UART communication with main microcomputer Data reception
35	P61/CLK0	AL_FUT	I	H	(Reserved) Input for SQ IC (IC3201)
36	P60/*CTS0/*RTS0	REQ_MD	O	H	Communication request to the main microcomputer
37	P57/*RDY/CLKOUT	INP_MUTE	O	L	Output mute of LVDS receiver
38	P56/ALE	–	O		
39	P55/*HOLD	EPM	I		Flash rewriting mode setting (pull-down)
40	P54/*HLDA	DRF_B	O	L	High power system OFF
41	P53/BCLK	RELAY	O	H	Power ON control
42	P52/*RD	–	O		
43	P51/*WRH/*BHE	–	O		
44	P50/*WRL/*WR	CE	I		Flash rewriting mode setting (pull-up)
45	P47/*CS3	MODEL	I	–	Product distinction (FHD: L)
46	P46/*CS2	SCL	O		IIC clock output for DAC
47	P45/*CS1	SDA	I/O		IIC data input/output for DAC
48	P44/*CS0	PD_MUTE_B	O	L	Power down mute
49	P43/A19	LED_B	O	L	Power ON/SD information (For Assy)
50	P42/A18	LED_R	O	L	Power STBY/PD information (For Assy)

No.	Mark	Pin Name	I/O	Active	Pin Function
51	P41/A17	H_DET_B	I	L	H existence distinction
52	P40/A16	AL_SEL	O	H	UART switch (For IC3201 selection)
53	P37/A15	RST_SQ	O	L	SQ IC (IC3201 and IC3301) forced reset
54	P36/A14	CE_SQ	O	L	Enable for SQ IC (IC3201 and IC3301) communication
55	P35/A13	BUSY_SQ	I	H	Busy for SQ IC (IC3201 and IC3301) communication
56	P34/A12	–	O		
57	P33/A11	–	O		
58	P32/A10	AR_SEL	O	H	UART switch (For IC3301 selection)
59	P31/A9	WE_SQ	O	H	Switching signal of Flash rewriting path for SQ IC
60	VCC2	VCC2	–		STB 3.3 V
61	P30/A8(/-/D7)	PD_TRG	I	L	EXT_PD confirmation
62	VSS	GND	–		GND
63	P27/AN27/A7(/D7/D6)	SCAN_PD	I	H	SCAN decrease voltage PD
64	P26/AN26/A6(/D6/D5)	YDRV_PD	I	H	Y drive PD
65	P25/AN25/A5(/D5/D4)	YSUS_PD	I	H	Y-SUS PD
66	P24/AN24/A4(/D4/D3)	YDCDC_PD	I	H	DCDC converter PD of Y drive
67	P23/AN23/A3(/D3/D2)	SCN5V_PD	I	H	SCAN5V decrease voltage PD
68	P22/AN22/A2(/D2/D1)	XSUS_PD	I	H	X-SUS PD
69	P21/AN21/A1(/D1/D0)	XDCDC_PD	I	H	DCDC converter PD of X drive
70	P20/AN20/A0(/D0/-)	XDRV_PD	I	H	X drive PD
71	P17/D15/*INT5	–	I		
72	P16/D14/*INT4	–	I		
73	P15/D13/*INT3	AC_DET	I	L	AC power monitor
74	P14/D12	PBF	I		Panel distinction of High-efficiency/Conventional (FHD: L)
75	P13/D11	–	I		
76	P12/D10	–	I		
77	P11/D9	–	I		
78	P10/D8	–	I		
79	P07/AN17/D7	ADRS_PD	I	H	Address PD
80	P06/AN16/D6	–	I		
81	P05/AN15/D5	–	I		
82	P04/AN14/D4	SS_MODE	O	L	SSCG operation L: SSCG ON, H: SSCG OFF
83	P03/AN13/D3	R_SQ_NON	I	H	Drive stop detection of SQ IC (IC3301)
84	P02/AN12/D2	DDC_PD	I	H	DCDC converter PD
85	P01/AN11/D1	PS_PD	I	H	PD in the POWER SUPPLY Unit
86	P00/AN10/D0	L_SQ_NON	I	H	Drive stop detection of SQ IC (IC3201)
87	P107/AN07/*KI3	OFF_DET_AR	O	L	Drive stop output to SQ IC (IC3301)
88	P106/AN06/*KI2	DL_FIN_AR	I	H	Rewriting completion signal of SQ IC (IC3301)
89	P105/AN05/*KI1	OFF_DET_AL	O	L	Drive stop output to SQ IC (IC3201)
90	P104/AN04/*KI0	DL_FIN_AL	I	H	Rewriting completion signal of SQ IC (IC3201)
91	P103/AN03	–	O		
92	P102/AN02	TEMP1	I	–	Panel temperature sensor input
93	P101/AN01	MODE	I	–	Assy operation mode setting
94	AVSS	GND	I		GND
95	P100/AN00	PSIZE	I	L	G7 size distinction (FHD: L)
96	VREF	VREF	I	–	Reference voltage for A/D input
97	AVCC	AVCC	I		STB 3.3 V
98	P97/*ADTRG/SIN4	RXD_AR	I	L	Serial communication with SQ IC (IC3301) Data reception
99	P96/ANEX1/SOUT4	–	O		
100	P95/ANEX0/CLK4	CLK_SQ	I		Serial communication with SQ IC (IC3201 and IC3301) Clock input

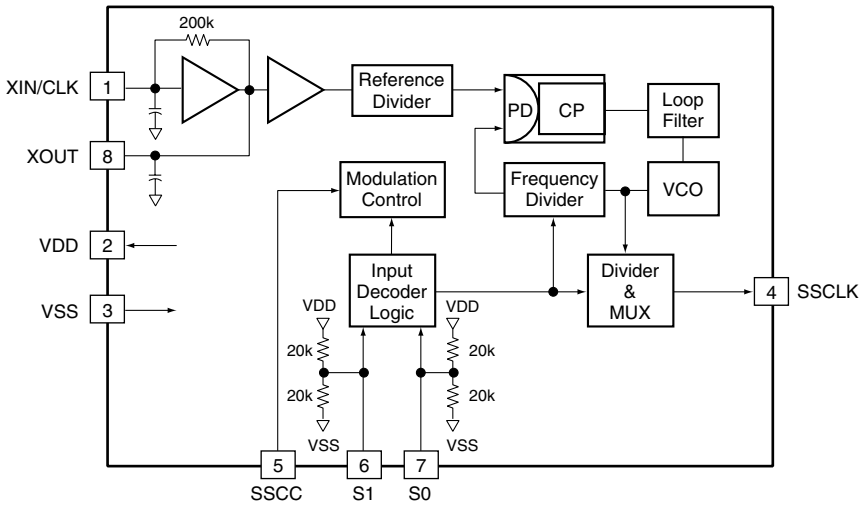
CY25561SXC (FHD DIGITAL ASSY: IC3401)

• SSCG IC

● Pin Arrangement (Top view)



● Block Diagram



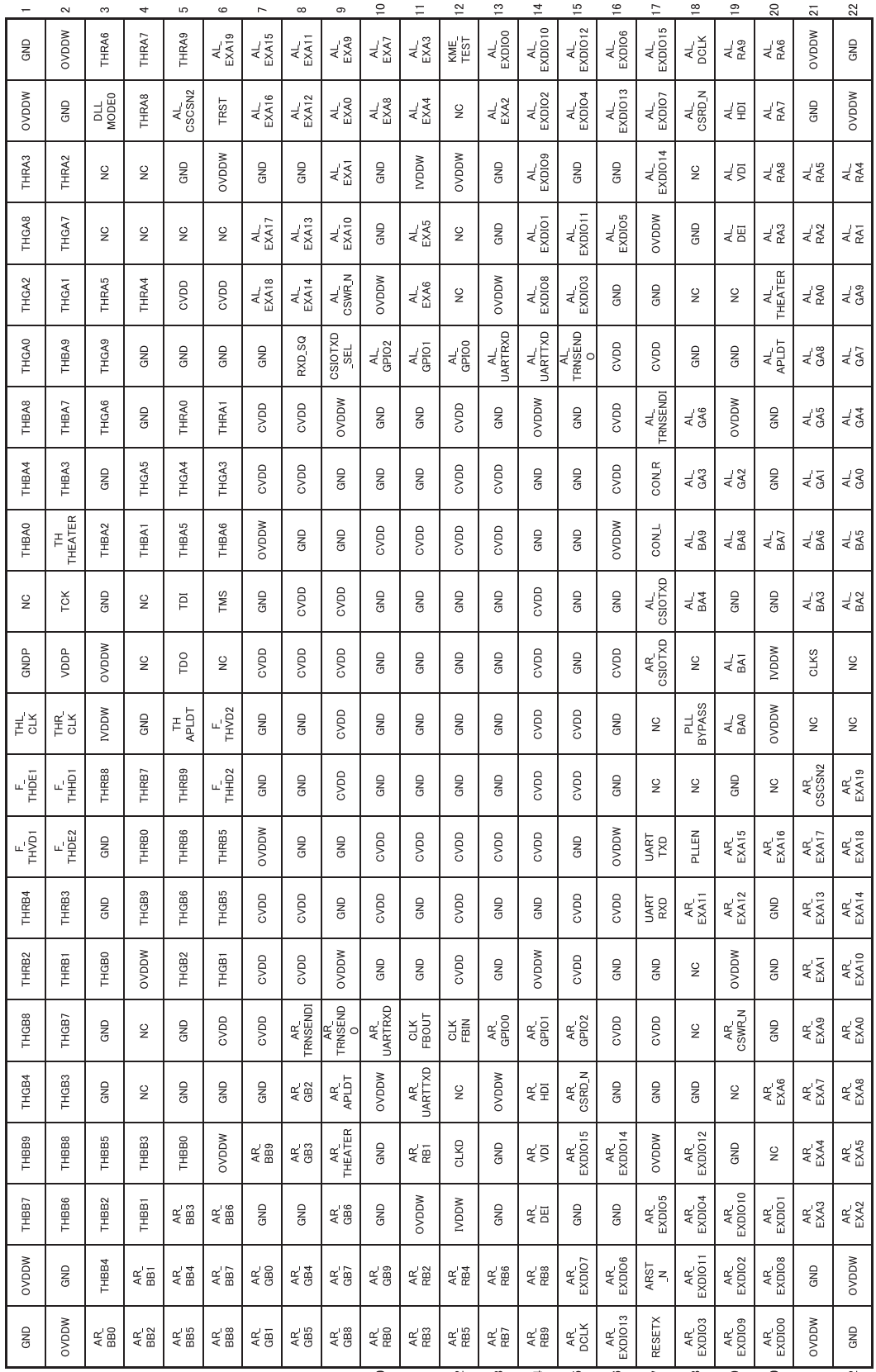
● Pin Function

No.	Pin Name	I/O	Pin Function
1	XIN/CLK	I	Oscillator input/clock input
2	VDD	–	Power supply
3	VSS	–	Ground
4	SSCLK	O	SSCG clock output
5	SSCC	I	SSCG function ON/OFF input L: Disable, H: Enable
6	S1	I	Modulation frequency and band width select
7	S0	I	Modulation frequency and band width select
8	XOUT	O	Oscillator output

■ PEE004A (FHD DIGITAL ASSY: IC3101)

• LSI for PDP Video Processing (Sequence Processor)

● Pin Arrangement (Top view)

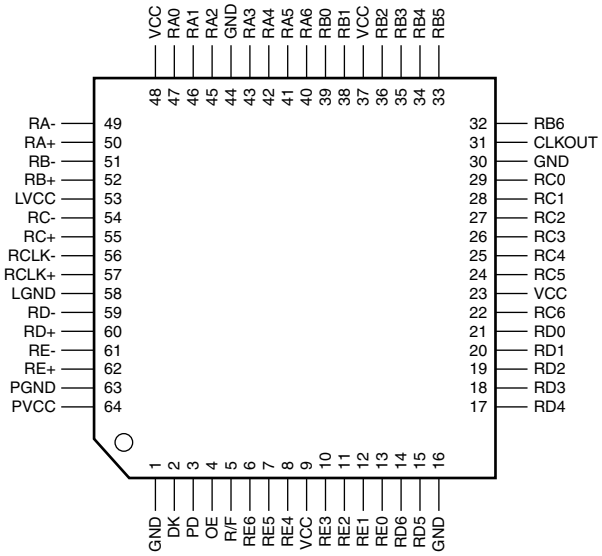


	AB	AA	Y	W	V	U	T	R	P	N	M	L	K	J	H	G	F	E	D	C	B	A
1	GND	OVDDW	THBB7	THBB9	THGB4	THGB8	THRB2	THRB4	F_ THVD1	F_ THDE1	THL_ CLK	GNDP	NC	THBA0	THBA4	THBA8	THGA0	THGA2	THGA8	THRA3	OVDDW	GND
2	OVDDW	GND	THBB6	THBB8	THGB3	THGB7	THRB1	THRB3	F_ THDE2	F_ THHD1	THR_ CLK	VDDP	TCK	TH THEATER	THBA3	THBA7	THBA9	THGA1	THGA7	THRA2	GND	OVDDW
3	AR_ BB0	THBB4	THBB2	THBB5	GND	GND	THGB0	THGB9	GND	THRB8	IVDDW	OVDDW	GND	THBA2	GND	THGA6	THGA9	THRA5	NC	NC	DLL MODE0	THRA6
4	AR_ BB2	AR_ BB1	THBB1	THBB3	NC	NC	OVDDW	THGB9	THRB0	THRB7	GND	NC	NC	THBA1	THGA5	GND	GND	THRA4	NC	NC	THRA8	THRA7
5	AR_ BB5	AR_ BB4	AR_ BB3	THBB0	GND	GND	THGB2	THGB6	THRB6	THRB9	TH APLDT	TDO	TDI	THBA5	THGA4	THRA0	GND	CVDD	NC	GND	AL_ CSCSN2	THRA9
6	AR_ BB8	AR_ BB7	AR_ BB6	OVDDW	GND	CVDD	THGB1	THGB5	THRB5	F_ THHD2	F_ THVD2	NC	TMS	THBA6	THGA3	THRA1	GND	CVDD	NC	OVDDW	TRST	AL_ EXA19
7	AR_ GB1	AR_ GB0	GND	AR_ BB9	GND	CVDD	CVDD	CVDD	OVDDW	GND	GND	CVDD	GND	OVDDW	CVDD	CVDD	GND	AL_ EXA18	AL_ EXA17	GND	AL_ EXA16	AL_ EXA15
8	AR_ GB5	AR_ GB4	GND	AR_ GB3	AR_ GB2	AR_ TRNSEND1	CVDD	CVDD	GND	GND	GND	CVDD	CVDD	GND	CVDD	CVDD	RXD_SQ	AL_ EXA14	AL_ EXA13	GND	AL_ EXA12	AL_ EXA11
9	AR_ GB8	AR_ GB7	AR_ GB6	AR_ THEATER	AR_ APLDT	AR_ TRNSEND O	OVDDW	GND	GND	CVDD	CVDD	CVDD	CVDD	GND	GND	OVDDW	CSIOTXD _SEL	AL_ CSWR_N	AL_ EXA10	AL_ EXA1	AL_ EXA0	AL_ EXA9
10	AR_ RB0	AR_ GB9	GND	GND	OVDDW	AR_ UARTRXD	GND	CVDD	CVDD	GND	GND	GND	GND	CVDD	GND	GND	AL_ GPIO2	OVDDW	GND	GND	AL_ EXA8	AL_ EXA7
11	AR_ RB3	AR_ RB2	OVDDW	AR_ RB1	AR_ UARTTXD	CLK FBOUT	GND	GND	CVDD	CVDD	GND	GND	GND	CVDD	GND	GND	AL_ GPIO1	AL_ EXA6	AL_ EXA5	IVDDW	AL_ EXA4	AL_ EXA3
12	AR_ RB5	AR_ RB4	IVDDW	CLKD	NC	CLK FBIN	CVDD	CVDD	CVDD	GND	GND	GND	GND	CVDD	CVDD	CVDD	AL_ GPIO0	NC	NC	OVDDW	NC	KME_ TEST
13	AR_ RB7	AR_ RB6	GND	GND	OVDDW	AR_ GPIO0	GND	GND	CVDD	GND	GND	GND	GND	CVDD	CVDD	GND	AL_ UARTRXD	OVDDW	GND	GND	AL_ EXA2	AL_ EXDIO0
14	AR_ RB9	AR_ RB8	AR_ DEI	AR_ VDI	AR_ HDI	AR_ GPIO1	OVDDW	GND	CVDD	CVDD	CVDD	CVDD	CVDD	GND	GND	OVDDW	AL_ UARTTXD	AL_ EXDIO8	AL_ EXDIO1	AL_ EXDIO9	AL_ EXDIO2	AL_ EXDIO10
15	AR_ DCLK	AR_ EXDIO7	GND	AR_ EXDIO15	AR_ CSRD_N	AR_ GPIO2	CVDD	CVDD	GND	CVDD	CVDD	GND	GND	GND	GND	GND	AL_ TRNSEND O	AL_ EXDIO3	AL_ EXDIO11	GND	AL_ EXDIO4	AL_ EXDIO12
16	AR_ EXDIO13	AR_ EXDIO6	GND	AR_ EXDIO14	GND	CVDD	GND	CVDD	OVDDW	GND	GND	CVDD	GND	OVDDW	CVDD	CVDD	CVDD	GND	AL_ EXDIO5	GND	AL_ EXDIO13	AL_ EXDIO6
17	RESETX	ARST _N	AR_ EXDIO5	OVDDW	GND	CVDD	GND	UART RXD	UART TXD	NC	NC	AR_ CSIOTXD	AL_ CSIOTXD	CON_L	CON_R	AL_ TRNSEND1	CVDD	GND	OVDDW	AL_ EXDIO14	AL_ EXDIO7	AL_ EXDIO15
18	AR_ EXDIO3	AR_ EXDIO11	AR_ EXDIO4	AR_ EXDIO12	GND	NC	NC	AR_ EXA11	PLLEN	NC	PLL BYPASS	NC	AL_ BA4	AL_ BA9	AL_ GA3	AL_ GA6	GND	NC	GND	NC	AL_ CSRD_N	AL_ DCLK
19	AR_ EXDIO9	AR_ EXDIO2	AR_ EXDIO10	GND	NC	AR_ CSWR_N	OVDDW	AR_ EXA12	AR_ EXA15	GND	AL_ BA0	AL_ BA1	GND	AL_ BA8	AL_ GA2	OVDDW	GND	NC	AL_ DEI	AL_ VDI	AL_ HDI	AL_ RA9
20	AR_ EXDIO0	AR_ EXDIO8	AR_ EXDIO1	NC	AR_ EXA6	GND	GND	GND	AR_ EXA16	NC	OVDDW	IVDDW	GND	AL_ BA7	GND	GND	AL_ APLDT	AL_ THEATER	AL_ RA3	AL_ RA8	AL_ RA7	AL_ RA6
21	OVDDW	GND	AR_ EXA3	AR_ EXA4	AR_ EXA7	AR_ EXA9	AR_ EXA1	AR_ EXA13	AR_ EXA17	AR_ CSCSN2	NC	CLKS	AL_ BA3	AL_ BA6	AL_ GA1	AL_ GA5	AL_ GA8	AL_ RA0	AL_ RA2	AL_ RA5	GND	OVDDW
22	GND	OVDDW	AR_ EXA2	AR_ EXA5	AR_ EXA8	AR_ EXA0	AR_ EXA10	AR_ EXA14	AR_ EXA18	AR_ EXA19	NC	NC	AL_ BA2	AL_ BA5	AL_ GA0	AL_ GA4	AL_ GA7	AL_ GA9	AL_ RA1	AL_ RA4	OVDDW	GND
	AB	AA	Y	W	V	U	T	R	P	N	M	L	K	J	H	G	F	E	D	C	B	A

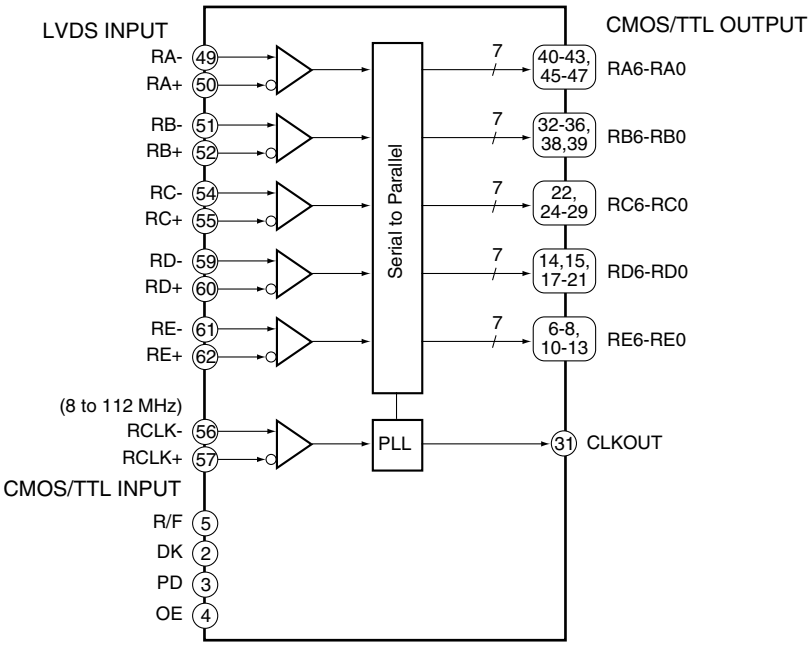
THC63LVD104S (FHD DIGITAL ASSY: IC3001, IC3002)

• LVDS Receiver IC

● Pin Arrangement (Top view)



● Block Diagram



■ AGC1005 (FHD MAIN ASSY: IC4803)

• IF Microcomputer

● Pin Function

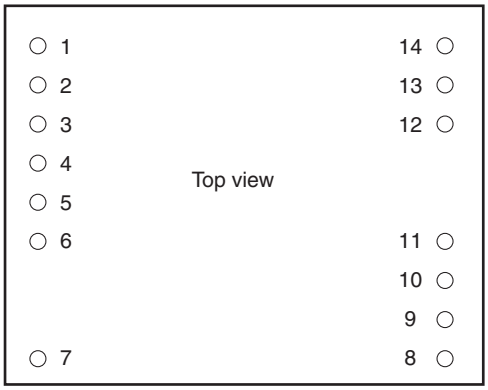
No.	Mark	Pin Name	I/O	Pin Function	Active
1	PB6/AN6	PD5	I	Writing detection input of the master microcomputer (WD_MTR) old PN2	H
2	PB7/AN7			N.C.	
3	AVcc		I	Power supply STB3.3 V	
4	X2		O	Output for sub clock (32.768 kHz) Set to open when do not use.	
5	X1		I	Input for sub clock Connect to VCL or VSS (GND) when do not use.	
6	Vcl			Internal voltage drop power supply (0.1µF)	
7	*RES	RST	I	Reset input	L
8	TEST		I	Normally pull-down (H input when writing with the writer mode)	
9	Vss		I	GND	
10	OSC2		O	Output for main clock	
11	OSC1		I	Input for main clock	
12	Vcc		I	Power supply STB3.3 V	
13	P50/*WKP0	AC_OFF	I	AC off detection of P side in two units. (from MDR)	H
14	P51/*WKP1	AC_DET	I	N.C.	H
15	P34	EXP_A4	I	SCDT, DVI sync ditekuto	
16	P35	EXP_A5	O	DVI_PS, DVI power save	
17	P36	EXP_A6	O	EDID_SEL, DVI EDIT select	
18	P37	EXP_A7		N.C.	
19	P52/*WKP2	CE_IF	I	Chip enable for Ucom communication at the master side	L
20	P53/*WKP3	RST_MTR	O	Reset signal output of the Ucom at the master side	L
21	P54/*WKP4	PON_TRG	I	N.C.	L
22	P55/*WKP5/*ADTRG	REQ_IF		Communication request to the Ucom at the master side	H
23	P10/TMOW	BUSY_IF	O	Communication inhibit to the Ucom at the master side	H
24	P11/PWM	EXP_B0		N.C.	
25	P12	WE_MTR	O	For rewriting of the other flash by the external PC	H
26	P56/SDA	SDA_IF	I/O	N.C.	L
27	P57/SCL	SCL_IF	O	N.C.	L
28	P74/TMRIV	EXP_B1		N.C.	
29	P75/TMCIV	EXP_B2		N.C.	
30	P76/TMOV	EXP_B3		N.C.	
31	P24	AV_LINK_OUT	O	N.C.	H
32	P63/FTIOD0	LED_3	O	N.C.	L
33	P62/FTIOC0	LED_2	O	For logotype mark	L
34	P61/FTIOB0	LED_1	O	For power ON (blue) LED_ON	L
35	*NMI		I	L setting at writing in the boot mode (Normally pull-up)	
36	P60/FTIOA0	LED_0	O	For power OFF (red) LED_OFF	L
37	P64/FTIOA1	EXP_B4		N.C.	
38	P65/FTIOB1	EXP_B5		N.C.	
39	P66/FTIOC1	EXP_B6		N.C.	
40	P67/FTIOD1	EXP_B7		N.C.	
41	P85		I	H setting at writing in the boot mode	
42	P86			For emulator	
43	P87			For emulator	
44	P20/SCK3	SCK	I	Clock for ROM writer writing	L
45	P21/RXD	RXD	I	Reception data line of RS-232C for user/ For ROM writer writing	L

No.	Mark	Pin Name	I/O	Pin Function	Active
46	P22/TXD	TXD	O	Transmission data line of RS-232C for user/ For ROM writer writing	L
47	P23	ACTIVE	O	Power supply for the master side Ucom ON/OFF	H
48	P70/SCK3_2	CLK_IF	I	Clock input for the master side Ucom	L
49	P71/RXD_2	RXD_IF	I	Reception data for the master side Ucom	L
50	P72/TXD_2	TXD_IF	O	Transmission data for the master side Ucom	L
51	P14/*IRQ0	KEY_SCAN	I	KEY code input	L
52	P15/*IRQ1/TMIB1	SR_IN	I	Remote control code input (Integrated unit: directly, Separate unit: use MDR cable)	L
53	P16/*IRQ2	AV_LINK_IN	I	N.C.	L
54	P17/*IRQ3/TRGV	SR_EN_B		SR_EN_B	
55	P33	EXP_A3		N.C.	
56	P32	EXP_A2		N.C.	
57	P31	EXP_A1	Hold	N.C.	
58	P30	EXP_A0		N.C.	
59	PB3/AN3	232C_DET	I	232C_DET	H
60	PB2/AN2	TEST1	I	Operation mode switch for Assy checker (H: NORMA, L: Assy unit, M: Port check)	–
61	PB1/AN1		I	N.C.	–
62	PB0/AN0	KEY_ST	I	KEY(A/D) setting	–
63	PB4/AN4	KEY_AD1	I	Key voltage input of KEY(A/D)1	–
64	PB5/AN5	KEY_AD2	I	Key voltage input of KEY(A/D)2	–

■ AXY1136 (FHD MAIN ASSY: U4401)

• DC-DC Converter Unit

● Pin Arrangement (Top view)



● Pin Function

No.	Pin Name	Pin Function
1	Vin	Input terminal
2	Vin	Input terminal
3	GND	Input GND terminal
4	GND	Input GND terminal
5	ON/OFF	ON/OFF
6	GND	Output GND terminal
7	Vo3	Output terminal (1.8 V)
8	Vo1	Output terminal (3.3 V)
9	Vo1	Output terminal (3.3 V)
10	GND	Output GND terminal
11	GND	Output GND terminal
12	GND	Output GND terminal
13	Vo2	Output terminal (1.2 V)
14	Vo2	Output terminal (1.2 V)

EP2C20F484C8N (FHD MAIN ASSY: IC6601)

• FPGA

● Pin Function

No.	F484	Pin Name	I/O	Pin Function
1	A1	GND	–	Connect to GND
2	B1	VCCIO2	–	V+3_3V_D_FPGA1
3	C1	Y2_O[1]	O	to Triton IN4 Y4_I1
4	D1	Y2_O[4]	O	to Triton IN4 Y4_I4
5	E1	C2_O[1]	O	to Triton IN4 C4_I1
6	F1	C2_O[4]	O	to Triton IN4 C4_I4
7	G1	NC	–	N.C.
8	H1	V2_O	O	to Triton IN4 V4_I
9	J1	SCLK	I	from M_Carrera FCK
10	K1	nCE	–	Configuration
11	L1	CLK3_I	I	DATACK (AD)
12	M1	CLK1_I	I	CLKB_O (Triton)
13	N1	MONITOR[0]	O	TEST_0 (probe land)
14	P1	RCR1_I[0]	I	from Triton side B output RCRB_O0
15	R1	RCR1_I[4]	I	from Triton side B output RCRB_O4
16	T1	GY1_I[1]	I	from Triton side B output GYB_O1
17	U1	GY1_I[5]	I	from Triton side B output GYB_O5
18	V1	BCB1_I[1]	I	from Triton side B output BCBB_O1
19	W1	BCB1_I[4]	I	from Triton side B output BCBB_O4
20	Y1	V1_I	I	from Triton side B output VB_O
21	AA1	VCCIO1	–	V+3_3V_D_FPGA1
22	AB1	GND	–	Connect to GND
23	AB2	VCCIO8	–	V+3_3V_D_FPGA1
24	AB3	RCR1_O[7]	O	to Triton IN2 RCR2_I7
25	AB4	RCR1_O[5]	O	to Triton IN2 RCR2_I5
26	AB5	RCR1_O[2]	O	to Triton IN2 RCR2_I2
27	AB6	GY1_O[7]	O	to Triton IN2 GY2_I7
28	AB7	GY1_O[3]	O	to Triton IN2 GY2_I3
29	AB8	GY1_O[0]	O	to Triton IN2 GY2_I0
30	AB9	BCB1_O[4]	O	to Triton IN2 BCB2_I4
31	AB10	BCB1_O[0]	O	to Triton IN2 BCB2_I0
32	AB11	H1_O	O	to Triton IN2 H2_I
33	AB12	FLDA_O	O	to Carrera FLDI
34	AB13	HA_O	O	to Carrera SHDI
35	AB14	BCBA_O[5]	O	to Carrera SBAI (5)
36	AB15	BCBA_O[1]	O	to Carrera SBAI (1)
37	AB16	GYA_O[5]	O	to Carrera SGAI (5)
38	AB17	GYA_O[1]	O	to Carrera SGAI (1)
39	AB18	RCRA_O[5]	O	to Carrera SRAI (5)
40	AB19	RCRA_O[3]	O	to Carrera SRAI (3)
41	AB20	RCRA_O[1]	O	to Carrera SRAI (1)
42	AB21	VCCIO7	–	V+3_3V_D_FPGA1
43	AB22	GND	–	Connect to GND
44	AA22	VCCIO6	–	V+3_3V_D_FPGA1
45	Y22	HB_O	O	to Carrera SHDI

● **Pin Function**

No.	F484	Pin Name	I/O	Pin Function
46	W22	BCBB_O[6]	O	to Carrera SBAI (6)
47	V22	BCBB_O[3]	O	to Carrera SBAI (3)
48	U22	GYB_O[7]	O	to Carrera SGAI (7)
49	T22	GYB_O[3]	O	to Carrera SGAI (3)
50	R22	RCRB_O[7]	O	to Carrera SRAI (7)
51	P22	NC	–	N.C.
52	N22	RCRB_O[2]	O	to Carrera SRAI (2)
53	M22	GND+	–	Connect to GND
54	L22	CLK4_I	I	ODCK (DVI_Rx)
55	K22	V4_I	I	from DVI_Rx VSYNC
56	J22	RCR4_I[5]	I	from DVI_Rx QE21/R5
57	H22	NC	–	N.C.
58	G22	RCR4_I[1]	I	from DVI_Rx QE17/R1
59	F22	GY4_I[7]	I	from DVI_Rx QE15/G7
60	E22	GY4_I[3]	I	from DVI_Rx QE11/G3
61	D22	BCB4_I[7]	I	from DVI_Rx QE7/B7
62	C22	BCB4_I[3]	I	from DVI_Rx QE3/B3
63	B22	VCCIO5	–	V+3_3V_D_FPGA1
64	A22	GND	–	Connect to GND
65	A21	VCCIO4	–	V+3_3V_D_FPGA1
66	A20	V2_I	I	from HDMI VSYNC
67	A19	BCB2_I[0]	I	from HDMI Q0/B0
68	A18	BCB2_I[3]	I	from HDMI Q3/B3
69	A17	BCB2_I[6]	I	from HDMI Q6/B6
70	A16	GY2_I[1]	I	from HDMI Q9/G1
71	A15	GY2_I[5]	I	from HDMI Q13/G5
72	A14	RCR2_I[1]	I	from HDMI Q17/R1
73	A13	RCR2_I[7]	I	from HDMI Q23/R7
74	A12	CLK2_I	I	ODCK (HDMI_Rx)
75	A11	BCB3_I[1]	I	from AD BLUE (1)
76	A10	BCB3_I[5]	I	from AD BLUE (5)
77	A9	GY3_I[1]	I	from AD GREEN (1)
78	A8	GY3_I[5]	I	from AD GREEN (5)
79	A7	RCR3_I[1]	I	from AD RED (1)
80	A6	RCR3_I[5]	I	from AD RED (5)
81	A5	RCR3_I[7]	I	from AD RED (7)
82	A4	INT_V3_I	I	from RGB SW INT_VD_OUT2
83	A3	GND*	–	N.C. (probe land)
84	A2	VCCIO3-	–	V+3_3-1_8V_D_FPGA1
85	B2	GND	–	Connect to GND
86	C2	Y2_O[0]	O	to Triton IN4 Y4_I0
87	D2	Y2_O[3]	O	to Triton IN4 Y4_I3
88	E2	C2_O[0]	O	to Triton IN4 C4_I0
89	F2	C2_O[3]	O	to Triton IN4 C4_I3
90	G2	NC	–	N.C.
91	H2	DE2_O	O	to Triton IN4 DE4_I
92	J2	DATAO	bidir	from M_Carrera FRXD
93	K2	TCK	I	Configuration
94	L2	GND+	–	Connect to GND
95	M2	GND+	–	Connect to GND

● **Pin Function**

No.	F484	Pin Name	I/O	Pin Function
96	N2	MONITOR[1]	O	TEST_1 (probe land)
97	P2	RCR1_I[1]	I	from Triton side B output RCRB_O1
98	R2	RCR1_I[5]	I	from Triton side B output RCRB_O5
99	T2	GY1_I[2]	I	from Triton side B output GYB_O2
100	U2	GY1_I[6]	I	from Triton side B output GYB_O6
101	V2	BCB1_I[0]	I	from Triton side B output BCBB_O0
102	W2	BCB1_I[5]	I	from Triton side B output BCBB_O5
103	Y2	H1_I	I	from Triton side B output HB_O
104	AA2	GND	–	Connect to GND
105	AA3	GND*	–	Standby (probe land)
106	AA4	RCR1_O[6]	O	to Triton IN2 RCR2_I6
107	AA5	RCR1_O[3]	O	to Triton IN2 RCR2_I3
108	AA6	RCR1_O[0]	O	to Triton IN2 RCR2_I0
109	AA7	GY1_O[4]	O	to Triton IN2 GY2_I4
110	AA8	GY1_O[1]	O	to Triton IN2 GY2_I1
111	AA9	BCB1_O[5]	O	to Triton IN2 BCB2_I5
112	AA10	BCB1_O[1]	O	to Triton IN2 BCB2_I1
113	AA11	V1_O	O	to Triton IN2 V2_I
114	AA12	DEA_O	O	to Carrera SDEI
115	AA13	VA_O	O	to Carrera SVDI
116	AA14	BCBA_O[4]	O	to Carrera SBAI (4)
117	AA15	BCBA_O[0]	O	to Carrera SBAI (0)
118	AA16	GYA_O[4]	O	to Carrera SGAI (4)
119	AA17	GYA_O[0]	O	to Carrera SGAI (0)
120	AA18	RCRA_O[4]	O	to Carrera SRAI (4)
121	AA19	RCRA_O[2]	O	to Carrera SRAI (2)
122	AA20	RCRA_O[0]	O	to Carrera SRAI (0)
123	AA21	GND	–	Connect to GND
124	Y21	DEB_O	O	to Carrera SDEI
125	W21	BCBB_O[7]	O	to Carrera SBAI (7)
126	V21	BCBB_O[4]	O	to Carrera SBA I(4)
127	U21	BCBB_O[0]	O	to Carrera SBAI (0)
128	T21	GYB_O[4]	O	to Carrera SGAI (4)
129	R21	GYB_O[0]	O	to Carrera SGAI (0)
130	P21	NC	–	N.C.
131	N21	RCRB_O[3]	O	to Carrera SRAI (3)
132	M21	GND+	–	Connect to GND
133	L21	GND+	–	Connect to GND
134	K21	DE4_I	I	from DVI_Rx DE
135	J21	RCR4_I[4]	I	from DVI_Rx QE20/R4
136	H21	NC	–	N.C.
137	G21	RCR4_I[0]	I	from DVI_Rx QE16/R0
138	F21	GY4_I[6]	I	from DVI_Rx QE14/G6
139	E21	GY4_I[2]	I	from DVI_Rx QE10/G2
140	D21	BCB4_I[6]	I	from DVI_Rx QE6/B6
141	C21	BCB4_I[2]	I	from DVI_Rx QE2/B2
142	B21	GND	–	Connect to GND
143	B20	H2_I	I	from HDMI HSYNC
144	B19	DE2_I	I	from HDMI DE
145	B18	BCB2_I[2]	I	from HDMI Q2/B2

● **Pin Function**

No.	F484	Pin Name	I/O	Pin Function
146	B17	BCB2_I[5]	I	from HDMI Q5/B5
147	B16	GY2_I[3]	I	from HDMI Q11/G3
148	B15	GY2_I[4]	I	from HDMI Q12/G4
149	B14	RCR2_I[0]	I	from HDMI Q16/R0
150	B13	RCR2_I[5]	I	from HDMI Q21/R5
151	B12	GND+	–	Connect to GND
152	B11	BCB3_I[0]	I	from AD BLUE (0)
153	B10	BCB3_I[6]	I	from AD BLUE (6)
154	B9	BCB3_I[7]	I	from AD BLUE (7)
155	B8	GY3_I[6]	I	from AD GREEN (6)
156	B7	RCR3_I[2]	I	from AD RED (2)
157	B6	RCR3_I[6]	I	from AD RED (6)
158	B5	H3_I	I	from AD HSOUT
159	B4	EXT_V3_I	I	from RGB SW EXT_VD_OUT2
160	B3	GND*	–	Standby (probe land)
161	C3	*~nCSO~/GND*	O	Configuration
162	D3	GND*	–	Standby (probe land)
163	E3	Y2_O[7]	O	to Triton IN4 Y4_I7
164	F3	C2_O[2]	O	to Triton IN4 C4_I2
165	G3	C2_O[7]	O	to Triton IN4 C4_I7
166	H3	GND*	–	Connect to GND
167	J3	NC	–	N.C.
168	K3	GND	–	Connect to GND
169	L3	VCCIO2	–	V+3_3V_D_FPGA1
170	M3	VCCIO1	–	V+3_3V_D_FPGA1
171	N3	MONITOR[2]	O	TEST_2 (probe land)
172	P3	GND*	–	Connect to GND
173	R3	GND	–	Connect to GND
174	T3	GY1_I[3]	I	from Triton side B output GYB_O3
175	U3	GND*	–	Connect to GND
176	V3	GND	–	Connect to GND
177	W3	BCB1_I[6]	I	from Triton side B output BCBB_O6
178	Y3	DE1_I	I	from Triton side B output DEB_O
179	Y4	FLD1_I	I	from Triton side B output FLDB_O
180	Y5	RCR1_O[4]	O	to Triton IN2 RCR2_I4
181	Y6	RCR1_O[1]	O	to Triton IN2 RCR2_I1
182	Y7	GND*	–	Connect to GND
183	Y8	GND	–	Connect to GND
184	Y9	BCB1_O[6]	O	to Triton IN2 BCB2_I6
185	Y10	GND*	–	Connect to GND
186	Y11	VCCIO8	–	V+3_3V_D_FPGA1
187	Y12	VCCIO7	–	V+3_3V_D_FPGA1
188	Y13	GND*	–	Connect to GND
189	Y14	BCBA_O[3]	O	to Carrera SBAI (3)
190	Y15	GND	–	Connect to GND
191	Y16	GND*	–	Connect to GND
192	Y17	RCRA_O[7]	O	to Carrera SRAI (7)
193	Y18	VB_O	O	to Carrera SVDI
194	Y19	CLKB_O	O	to Carrera SCLKI
195	Y20	FLDB_O	O	to Carrera FLDI

● **Pin Function**

No.	F484	Pin Name	I/O	Pin Function
196	W20	*LVDS91p/nCEO/GND*	O	Standby (probe land)
197	V20	BCBB_O[5]	O	to Carrera SBAI (5)
198	U20	GND*	–	Connect to GND
199	T20	GND	–	Connect to GND
200	R20	GND*	–	Connect to GND
201	P20	NC	–	N.C.
202	N20	nSTATUS	–	Configuration
203	M20	VCCIO6	–	V+3_3V_D_FPGA1
204	L20	VCCIO5	–	V+3_3V_D_FPGA1
205	K20	GND*	–	Connect to GND
206	J20	RCR4_I[3]	I	from DVI_Rx QE19/R3
207	H20	GND	–	Connect to GND
208	G20	GND*	–	Connect to GND
209	F20	GY4_I[5]	I	from DVI_Rx QE13/G5
210	E20	GY4_I[1]	I	from DVI_Rx QE9/G1
211	D20	BCB4_I[5]	I	from DVI_Rx QE5/B5
212	C20	BCB4_I[1]	I	from DVI_Rx QE1/B1
213	C19	BCB4_I[0]	I	from DVI_Rx QE0/B0
214	C18	BCB2_I[1]	I	from HDMI Q1/B1
215	C17	BCB2_I[4]	I	from HDMI Q4/B4
216	C16	GND*	–	Connect to GND
217	C15	GND	–	Connect to GND
218	C14	GY2_I[7]	I	from HDMI Q15/G7
219	C13	GND*	–	Connect to GND
220	C12	VCCIO4	–	V+3_3V_D_FPGA1
221	C11	VCCIO3	–	V+3_3-1_8V_D_FPGA1
222	C10	GND*	–	Connect to GND
223	C9	GY3_I[2]	I	from AD GREEN (2)
224	C8	GND	–	Connect to GND
225	C7	GND*	–	Connect to GND
226	C6	VCCIO3-	–	V+3_3-1_8V_D_FPGA1
227	C5	GND	–	Connect to GND
228	C4	*ASDO/GND*	O	Configuration
229	D4	GND*	–	Standby (probe land)
230	E4	Y2_O[6]	O	to Triton IN4 Y4_I6
231	F4	GND*	–	Connect to GND
232	G4	GND	–	Connect to GND
233	H4	CLK2_O	O	to Triton IN4 CLK4_I
234	J4	DATAI	I	from M_Carrera FTXD
235	K4	DATA0	I	Configuration
236	L4	nCONFIG	–	Configuration
237	M4	GND	–	Connect to GND
238	N4	RCR1_I[2]	I	from Triton side B output RCRB_O2
239	P4	NC	–	N.C.
240	R4	NC	–	N.C.
241	T4	VCCIO1	–	V+3_3V_D_FPGA1
242	U4	GY1_I[7]	I	from Triton side B output GYB_O7
243	V4	BCB1_I[2]	I	from Triton side B output BCBB_O2
244	W4	BCB1_I[7]	I	from Triton side B output BCBB_O7
245	W5	BCB1_I[3]	I	from Triton side B output BCBB_O3

● **Pin Function**

No.	F484	Pin Name	I/O	Pin Function
246	W6	VCCIO8	–	V+3_3V_D_FPGA1
247	W7	GY1_O[5]	O	to Triton IN2 GY2_I5
248	W8	GY1_O[2]	O	to Triton IN2 GY2_I2
249	W9	BCB1_O[2]	O	to Triton IN2 BCBI2_I2
250	W10	GND	–	Connect to GND
251	W11	DE1_O	O	to Triton IN2 DE2_I
252	W12	GND+	–	Connect to GND
253	W13	GND	–	Connect to GND
254	W14	BCBA_O[2]	O	to Carrera SBAI (2)
255	W15	GYA_O[7]	O	to Carrera SGAI (7)
256	W16	GND*	–	N.C.
257	W17	VCCIO7	–	V+3_3V_D_FPGA1
258	W18	NC	–	N.C.
259	W19	GND	–	Connect to GND
260	V19	GND*	–	Standby (probe land)
261	U19	BCBB_O[1]	O	to Carrera SBAI (1)
262	T19	VCCIO6	–	V+3_3V_D_FPGA1
263	R19	GYB_O[1]	O	to Carrera SGAI (1)
264	P19	NC	–	N.C.
265	N19	GND	–	Connect to GND
266	M19	RCRB_O[0]	O	to Carrera SRAI (0)
267	L19	H4_I	I	from DVI_Rx HSYNC
268	K19	GND	–	Connect to GND
269	J19	RCR4_I[7]	I	from DVI_Rx QE23/R7
270	H19	RCR4_I[2]	I	from DVI_Rx QE18/R2
271	G19	VCCIO5	–	V+3_3V_D_FPGA1
272	F19	GND	–	Connect to GND
273	E19	GY4_I[0]	I	from DVI_Rx QE8/G0
274	D19	BCB4_I[4]	I	from DVI_Rx QE4/B4
275	D18	GND	–	Connect to GND
276	D17	VCCIO4	–	V+3_3V_D_FPGA1
277	D16	GY2_I[0]	I	from HDMI Q8/G0
278	D15	GY2_I[2]	I	from HDMI Q10/G2
279	D14	GY2_I[6]	I	from HDMI Q14/G6
280	D13	GND	–	Connect to GND
281	D12	RESETX	I	RESET input
282	D11	BCB3_I[2]	I	from AD BLUE (2)
283	D10	GND	–	Connect to GND
284	D9	GY3_I[3]	I	from AD GREEN (3)
285	D8	GY3_I[7]	I	from AD GREEN (7)
286	D7	RCR3_I[3]	I	from AD RED (3)
287	D6	Y2_O[5]	O	to Triton IN4 Y4_I5
288	D5	Y2_O[2]	O	to Triton IN4 Y4_I2
289	E5	VCCD_PLL3	–	V+1_2_D_FPGA1_PLL
290	F5	GNDG_PLL3	–	Connect to GND
291	G5	C2_O[6]	O	to Triton IN4 C4_I6
292	H5	H2_O	O	to Triton IN4 H4_I
293	J5	NC	–	N.C.
294	K5	TDI	I	Configuration
295	L5	TDO	O	Configuration

● **Pin Function**

No.	F484	Pin Name	I/O	Pin Function
296	M5	GND*	–	N.C.
297	N5	NC	–	N.C.
298	P5	RCR1_I[6]	I	from Triton side B output RCRB_O6
299	R5	RCR1_I[7]	I	from Triton side B output RCRB_O7
300	T5	GY1_I[4]	I	from Triton side B output GYB_O4
301	U5	GNDD_PLL1	–	Connect to GND
302	V5	GNDG_PLL1	–	Connect to GND
303	V6	GND	–	Connect to GND
304	V7	GNDA_PLL1	–	Connect to GND
305	V8	GY1_O[6]	O	to Triton IN2 GY2_I6
306	V9	BCB1_O[7]	O	to Triton IN2 BCB2_I7
307	V10	VCCIO8	–	V+3_3V_D_FPGA1
308	V11	CLK1_O	O	to Triton IN2 CLK2_I
309	V12	GND+	–	Connect to GND
310	V13	VCCIO7	–	V+3_3V_D_FPGA1
311	V14	BCBA_O[6]	O	to Carrera SBAI (6)
312	V15	GYA_O[3]	O	to Carrera SGAI (3)
313	V16	GNDA_PLL4	–	Connect to GND
314	V17	GND	–	Connect to GND
315	V18	GNDG_PLL4	–	Connect to GND
316	U18	BCBB_O[2]	O	to Carrera SBAI (2)
317	T18	GYB_O[6]	O	to Carrera SGAI (6)
318	R18	GYB_O[5]	O	to Carrera SGAI (5)
319	P18	RCRB_O[4]	O	to Carrera SRAI (4)
320	N18	CONF_DONE	–	Configuration
321	M18	RCRB_O[1]	O	to Carrera SRAI (1)
322	L18	GND*	–	N.C.
323	K18	NC	–	N.C.
324	J18	RCR4_I[6]	I	from DVI_Rx QE22/R6
325	H18	GND*	–	N.C.
326	G18	GND*	–	N.C.
327	F18	GNDD_PLL2	–	Connect to GND
328	E18	GY4_I[4]	I	from DVI_Rx QE12/G4
329	E17	GNDG_PLL2	–	Connect to GND
330	E16	GNDA_PLL2	–	Connect to GND
331	E15	GND*	–	N.C.
332	E14	RCR2_I[3]	I	from HDMI Q19/R3
333	E13	VCCIO4	–	V+3_3V_D_FPGA1
334	E12	GND+	–	Connect to GND
335	E11	BCB3_I[3]	I	from AD BLUE (3)
336	E10	VCCIO3	–	V+3_3-1_8V_D_FPGA1
337	E9	GY3_I[4]	I	from AD GREEN (4)
338	E8	RCR3_I[0]	I	from AD RED (0)
339	E7	RCR3_I[4]	I	from AD RED (4)
340	E6	VCCA_PLL3	–	V+1_2_D_FPGA1_PLL
341	F6	GNDD_PLL3	–	Connect to GND
342	G6	C2_O[5]	O	to Triton IN4 C4_I5
343	H6	SENB	I	from M_Carrera FCE
344	J6	NC	–	N.C.
345	K6	TMS	I	Configuration

● **Pin Function**

No.	F484	Pin Name	I/O	Pin Function
346	L6	DCLK	–	Configuration
347	M6	GND*	–	N.C.
348	N6	MONITOR[3]	O	TEST_3 (probe land)
349	P6	RCR1_I[3]	I	from Triton side B output RCRB_O3
350	R6	GY1_I[0]	I	from Triton side B output GYB_O0
351	T6	GND*	–	N.C.
352	U6	VCCD_PLL1	–	V+1_2_D_FPGA1_PLL
353	U7	VCCA_PLL1	–	V+1_2_D_FPGA1_PLL
354	U8	GND*	–	N.C.
355	U9	BCB1_O[3]	O	to Triton IN2 BCB2_I3
356	U10	GND*	–	N.C.
357	U11	GND+	–	Connect to GND
358	U12	GND+	–	Connect to GND
359	U13	BCBA_O[7]	O	to Carrera SBAI (7)
360	U14	GND*	–	N.C.
361	U15	GYA_O[6]	O	to Carrera SGAI (6)
362	U16	VCCA_PLL4	–	V+1_2_D_FPGA1_PLL
363	U17	VCCD_PLL4	–	V+1_2_D_FPGA1_PLL
364	T17	GNDD_PLL4	–	Connect to GND
365	R17	GYB_O[2]	O	to Carrera SGAI (2)
366	P17	RCRB_O[5]	O	to Carrera SRAI (5)
367	N17	MSEL1	–	Configuration
368	M17	MSEL0	–	Configuration
369	L17	NC	–	N.C.
370	K17	NC	–	N.C.
371	J17	GND*	–	N.C.
372	H17	GND*	–	N.C.
373	G17	GND*	–	N.C.
374	F17	VCCD_PLL2	–	V+1_2_D_FPGA1_PLL
375	F16	VCCA_PLL2	–	V+1_2_D_FPGA1_PLL
376	F15	GND*	–	N.C.
377	F14	RCR2_I[2]	I	from HDMI Q18/R2
378	F13	RCR2_I[4]	I	from HDMI Q20/R4
379	F12	RCR2_I[6]	I	from HDMI Q22/R6
380	F11	BCB3_I[4]	I	from AD BLUE (4)
381	F10	GY3_I[0]	I	from AD GREEN (0)
382	F9	GND*	–	N.C.
383	F8	GND*	–	N.C.
384	F7	GNDA_PLL3	–	Connect to GND
385	G7	GND*	–	N.C.
386	H7	GND*	–	N.C.
387	J7	VCCIO2	–	V+3_3V_D_FPGA1
388	K7	GND	–	Connect to GND
389	L7	NC	–	N.C.
390	M7	NC	–	N.C.
391	N7	GND	–	Connect to GND
392	P7	VCCIO1	–	V+3_3V_D_FPGA1
393	R7	GND*	–	N.C.
394	T7	GND*	–	N.C.
395	T8	GND*	–	N.C.

● **Pin Function**

No.	F484	Pin Name	I/O	Pin Function
396	T9	VCCIO8	–	V+3_3V_D_FPGA1
397	T10	GND	–	Connect to GND
398	T11	GND*	–	N.C.
399	T12	GND*	–	N.C.
400	T13	GND	–	Connect to GND
401	T14	VCCIO7	–	V+3_3V_D_FPGA1
402	T15	GND*	–	N.C.
403	T16	RCRA_O[6]	O	to Carrera SRAI (6)
404	R16	GYA_O[2]	O	to Carrera SGAI (2)
405	P16	VCCIO6	–	V+3_3V_D_FPGA1
406	N16	GND	–	Connect to GND
407	M16	NC	–	N.C.
408	L16	NC	–	N.C.
409	K16	GND	–	Connect to GND
410	J16	VCCIO5	–	V+3_3V_D_FPGA1
411	H16	GND*	–	N.C.
412	G16	BCB2_I[7]	I	from HDMI Q7/B7
413	G15	GND*	–	N.C.
414	G14	VCCIO4	–	V+3_3V_D_FPGA1
415	G13	GND	–	Connect to GND
416	G12	GND*	–	N.C.
417	G11	GND*	–	N.C.
418	G10	GND	–	Connect to GND
419	G9	VCCIO3	–	V+3_3-1_8V_D_FPGA1
420	G8	GND*	–	N.C.
421	H8	GND*	–	N.C.
422	J8	NC	–	N.C.
423	K8	NC	–	N.C.
424	L8	GND*	–	N.C.
425	M8	NC	–	N.C.
426	N8	NC	–	N.C.
427	P8	GND*	–	N.C.
428	R8	GND*	–	N.C.
429	R9	GND*	–	N.C.
430	R10	GND*	–	N.C.
431	R11	GND*	–	N.C.
432	R12	GND*	–	N.C.
433	R13	GND*	–	N.C.
434	R14	CLKA_O	O	to Carrera SCLKI
435	R15	GND*	–	N.C.
436	P15	RCRB_O[6]	O	to Carrera SRAI (6)
437	N15	GND*	–	N.C.
438	M15	NC	–	N.C.
439	L15	NC	–	N.C.
440	K15	NC	–	N.C.
441	J15	GND*	–	N.C.
442	H15	GND*	–	N.C.
443	H14	GND*	–	N.C.
444	H13	GND*	–	N.C.
445	H12	GND*	–	N.C.

● **Pin Function**

No.	F484	Pin Name	I/O	Pin Function
446	H11	GND*	–	N.C.
447	H10	GND*	–	N.C.
448	H9	GND*	–	N.C.
449	J9	NC	–	N.C.
450	K9	VCCINT	–	V+1_2V_D_FPGA1_INT
451	L9	VCCINT	–	V+1_2V_D_FPGA1_INT
452	M9	VCCINT	–	V+1_2V_D_FPGA1_INT
453	N9	VCCINT	–	V+1_2V_D_FPGA1_INT
454	P9	GND*	–	N.C.
455	P10	VCCINT	–	V+1_2V_D_FPGA1_INT
456	P11	VCCINT	–	V+1_2V_D_FPGA1_INT
457	P12	VCCINT	–	V+1_2V_D_FPGA1_INT
458	P13	VCCINT	–	V+1_2V_D_FPGA1_INT
459	P14	NC	–	N.C.
460	N14	VCCINT	–	V+1_2V_D_FPGA1_INT
461	M14	VCCINT	–	V+1_2V_D_FPGA1_INT
462	L14	VCCINT	–	V+1_2V_D_FPGA1_INT
463	K14	VCCINT	–	V+1_2V_D_FPGA1_INT
464	J14	GND*	–	N.C.
465	J13	VCCINT	–	V+1_2V_D_FPGA1_INT
466	J12	VCCINT	–	V+1_2V_D_FPGA1_INT
467	J11	VCCINT	–	V+1_2V_D_FPGA1_INT
468	J10	VCCINT	–	V+1_2V_D_FPGA1_INT
469	K10	GND	–	Connect to GND
470	L10	GND	–	Connect to GND
471	M10	GND	–	Connect to GND
472	N10	GND	–	Connect to GND
473	N11	GND	–	Connect to GND
474	N12	GND	–	Connect to GND
475	N13	GND	–	Connect to GND
476	M13	GND	–	Connect to GND
477	L13	GND	–	Connect to GND
478	K13	GND	–	Connect to GND
479	K12	GND	–	Connect to GND
480	K11	GND	–	Connect to GND
481	L11	GND	–	Connect to GND
482	M11	GND	–	Connect to GND
483	M12	GND	–	Connect to GND
484	L12	GND	–	Connect to GND

■ MB91305PMC-G-BND (FHD MAIN ASSY: IC5002)

• Main Microcomputer

● Pin Function

No.	Mark	Pin Name	I/O	Pin Function	Active
1	VCEE		–	Power supply (+3.3 V)	
2	VSS		–	GND	
3	VCCI		–	Power supply (+1.8 V)	
4	D24	DQ8		External data bus	
5	D25	DQ9		External data bus	
6	D26	DQ10		External data bus	
7	D27	DQ11		External data bus	
8	D28	DQ12		External data bus	
9	D29	DQ13		External data bus	
10	D30	DQ14		External data bus	
11	D31	DQ15		External data bus	
12	VCEE		–	Power supply (+3.3 V)	
13	VSS		–	GND	
14	VCCI		–	Power supply (+1.8 V)	
15	RDX	OE	O	External bus read strobe output	
16	WR0X/DQMUU	WE	O	External bus write strobe output	
17	WR1X/DQMUL/P30	FAN_CONT	O	TP: FAN power SW (ON/OFF)	H
18	CS0X/P31	CE		External bus chip enable	
19	CS1X/P32	CE_IF	O	3-wires serial communication with the UIF microcomputer, enable old IF_CE	L
20	CS4X/P33	SP_MUTE	O	Small signal system MUTE No DELAY time	H
21	CS5X/P34	A_AMP_MUTE	O	Mute for POWER AMP ON: no DELAY, OFF: Delay of about 400 msec	H
22	CS6X/P35	PSW_DVI	O	Power SW for DVI	H
23	CS7X/P36	NC	O		–
24	RDY/P37	BUSY_IC3	I	3-wires serial communication with the Carrera, busy old IC3_BUSY	H
25	BGRNTX/P40	BUSY_IF	I	3-wires serial communication with the UIF microcomputer, busy old IF_BUSY	H
26	BRQ/P41	WE_IC3	O	UART path SW for Carrera	L
27	SYSCLK/P42	WATCH_DOG	O	Pin for examination with TP	–
28	MCLKE/P43	PSW1	O	Power SW1 (DCDC converter output mute)	L
29	MCLK/P44	SD_DET	O	Pin for examination with TP	–
30	ASX/LBAX/SRASX/P45	RST_DVI	O	DVI RST(When the function is STB, DVI exists.)	H
31	BAAX/SCASX/P46	WE_ROM	O	EDID_ROM write protect for PC/HDMI	H
32	WRX/SWRX/P47	CE_IC3	O	3-wires serial communication with the Carrera, enable old IC3_CE	L
33	VCEE		–	Power supply (+3.3 V)	
34	VSS		–	GND	
35	VCCI		–	Power supply (+1.8 V)	
36	A00	NC		N.C. setting	
37	A01	A0		External address bus	
38	A02	A1		External address bus	
39	A03	A2		External address bus	
40	A04	A3		External address bus	
41	A05	A4		External address bus	
42	A06	A5		External address bus	
43	A07	A6		External address bus	
44	A08	A7		External address bus	
45	A09	A8		External address bus	

● Pin Function

No.	Mark	Pin Name	I/O	Pin Function	Active
46	A10	A9		External address bus	
47	A11	A10		External address bus	
48	A12	A11		External address bus	
49	A13	A12		External address bus	
50	A14	A13		External address bus	
51	A15	A14		External address bus	
52	VCEE		–	Power supply (+3.3 V)	
53	VSS		–	GND	
54	VCCI		–	Power supply (+1.8 V)	
55	A16/P50	A15		External address bus	
56	A17/P51	A16		External address bus	
57	A18/P52	A17		External address bus	
58	A19/P53	A18		External address bus	
59	A20/P54	A19		External address bus	
60	A21/P55	NC	O		
61	A22/P56	ELITE_DET	I	ELITE model (North America)/ADVANCE model (Europe)/China model (General)/HDD (country) distinction	H
62	A23/P57	APPLI_ON	I	Detect connection of the ASIC examination jig	L
63	VCEE		–	Power supply (+3.3 V)	
64	X0		I	Clock input	
65	VSS		–	GND	
66	X1		O	Clock output	
67	VCCI		–	Power supply (+1.8 V)	
68	INTX	RESET	I	External reset input	
69	MD0	MD0	I	Operation mode setting L fixing	
70	MD1	MD1	I	Operation mode setting H fixing (not USB)	
71	MD2	MD2	I	Operation mode setting L: Normal, H: at writing	
72	MD3	MD3	I	Operation mode setting L fixing	
73	AVCC		–	Power supply for A/D	
74	AVRH		–	Reference power supply for A/D	
75	AVSS/AVRL		–	GND for A/D	
76	AN0	TEMP2	I	(A/D) Temperature sensor Outside temperature	AD
77	AN1	NC	I	–	AD
78	AN2/PF0	MODE	I	(A/D) Operation mode distinction	AD
79	AN3/PF1	NC	O	–	L
80	AN4/PF2	RST_FPGA	O	Initialization of F.F. in the FPGA (after CONF_DONE)	L
81	AN5/PF3	NC	O	–	L
82	AN5/PF4	RST4	I	For abnormal operation detection Monitor V+12V	L
83	AN7/PF5	DSUB_DET	I	PC V sync. signal detection	H
84	AN8/PF6	A_STBY_B	O	AUDIO power AMP ON/OFF	H
85	AN9/PF7	REQ_MVDEC	I	Modification information of the various detection result as the frequency judgments	L
86	ICS0	ICS0		Status output for development tool	
87	ICS1	ICS1		Status output for development tool	
88	ICS2	ICS2		Status output for development tool	
89	ICD0	ICD0		Data output for development tool	
90	ICD1	ICD1		Data output for development tool	
91	ICD2	ICD2		Data output for development tool	
92	ICD3	ICD3		Data output for development tool	
93	IBREAK	IBREAK		Break for development tool	
94	ICLK	ICLK		Clock for development tool	
95	TRSTX	TRSTX		Reset for development tool	

● Pin Function

No.	Mark	Pin Name	I/O	Pin Function	Active
96	VCEE		–	Power supply (+3.3 V)	
97	VSS		–	GND	
98	VCCI		–	Power supply (+1.8 V)	
99	SIN0/P60	RXD_WR	I	External PC/flash ROM writer/PC Card sharing	L
100	SOUT0/P61	TXD_WR	O	External PC/flash ROM writer/PC Card sharing	L
101	SCK0/P62	CLK_WR	I	Communication with the flash ROM writer, clock input	L
102	SIN1/P63	NC	I	–	L
103	SOUT1/P64	DATA_FPGA1	O	For FPGA configuration	L
104	SCK1/P65	DCLK_FPGA1	O	For FPGA configuration	L
105	SIN2/P70	RXD_IF	I	3-wires serial communication with the UIF microcomputer, data input	L
106	SOUT2/P71	TXD_IF	O	3-wires serial communication with the UIF microcomputer, data output	L
107	SCK2/P72	CLK_IF	O	3-wires serial communication with the UIF microcomputer, clcok output	L
108	SIN3/P73	RXD_MD	I	UART communication with the module microcomputer, data input	L
109	SOUT3/P74	TXD_MD	O	UART communication with the module microcomputer, data output	L
110	SCK3/P75	RST_ASIC	O	ASIC forced reset	L
111	SIN4/P80	RXD_IC3	I	3-wires serial communication with the Carrea, data input	L
112	SOUT4/P81	TXD_IC3	O	3-wires serial communication with the Carrea, data output	L
113	SCK4/P82	CLK_IC3	O	3-wires serial communication with the Carrea, clock output	L
114	SCL0/P83	SCL_AV3	O	When a function is STB, IIC communication for active device, clock output	L
115	SDA0/P84	SDA_AV3	I/O	When a function is STB, IIC communication for active device, data I/O	L
116	SCL1/P90	SCL_MA	O	When a function is STB, IIC communication for defective device, clock output	
117	SDA1/P91	SDA_MA	I/O	When a function is STB, IIC communication for defective device, data I/O	L
118	SCL2/P92	SCL_AUDIO	O	Audio preamplifier control	L
119	SDA2/P93	SDA_AUDIO	I/O	Audio preamplifier control	L
120	SCL3/P94	SCL_DVI	O	IIC communication for DVI_PM mode, clock output	L
121	SDA3/P95	SDA_DVI	I/O	IIC communication for DVI_PM mode, data I/O	L
122	SCL4/P96	SCL_EP	O	IIC communication for EEPROM, clock output	L
123	SDA4/P97	SDA_EP	I/O	IIC communication for EEPROM, data I/O	L
124	VCEE		–	Power supply (+3.3 V)	
125	VSS		–	GND	
126	VCCI		–	Power supply (+1.8 V)	
127	NMIX	NC	–	N.C.	
128	INT0/PA0	RST2	O	For abnormal operation detection Monitor V+3_3V_D	L
129	INT1/PA1	RST3	I	(Interrupt) Outage detection of AC	↑
130	INT2/PA2	HDMI_INT	I	(Interrupt) HDMI information packet modification interrupt (HDMI 1)	L
131	INT3/PA3	REQ_IF	I	Communication request from the UIF microcomputer	H
132	INT4/PA4	REQ_IC3	I	Communication request from the Carrera (Signal mode modification) old IC3_REQ	H
133	INT5/PA5	NC	O	Reserved (interruption)	
134	INT6/PA6	REQ_MD	I	Communication request from the module microcomputer old REQ	H
135	INT7/PA7	A_NG_B	I	Speaker DC detection	L
136	INT8/PB0	NC	O	–	L
137	INT9/PB1	NC	O	–	L
138	INT10/ATRG/PB2	NC	O	–	L
139	INT11/FRCK/PB3	NC	O	–	L
140	INT12/ICU0/PB4	nSTATUS	I	Configuration state	L
141	INT13/ICU1/PB5	CONF DONE	I	Configuration state	H
142	INT14/ICU2/PB6	REQ_PEAK_M	I	Communication request from the Carrera (Peak detection at Silvia side in the Triton)	H
143	INT15/ICU3/PB7	REQ_PEAK_S	I	Communication request from the Carrera(Peak detection at Carrera in the Triton)	H
144	VCEE		–	Power supply (+3.3 V)	
145	UDP		–	USB plus terminal (not used)	

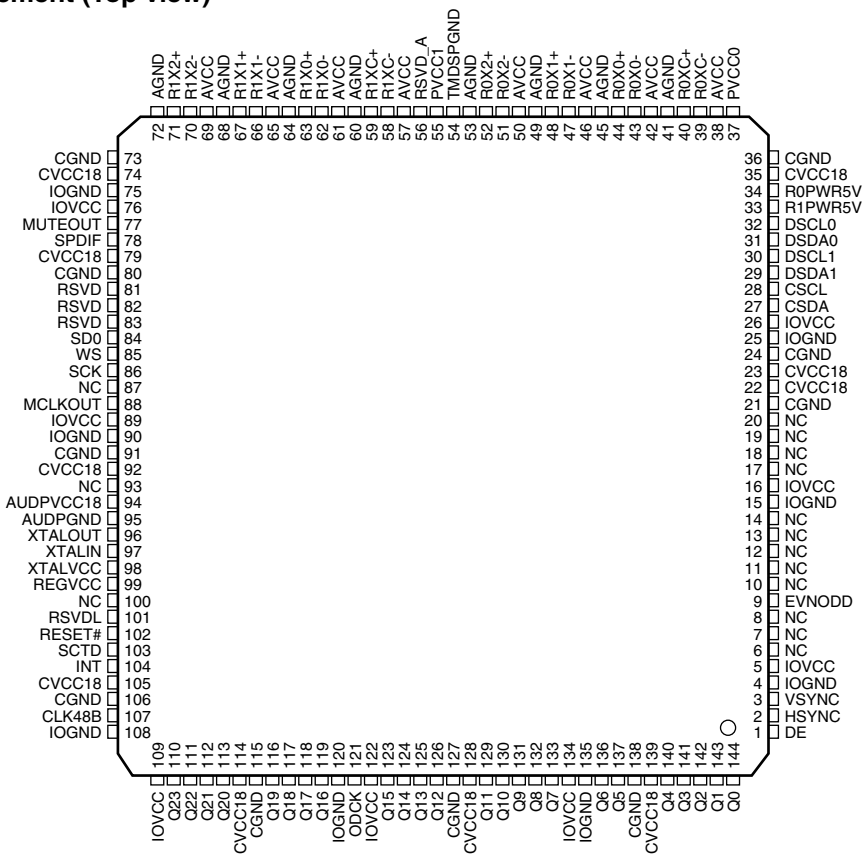
● **Pin Function**

No.	Mark	Pin Name	I/O	Pin Function	Active
146	UDM			USB minus terminal (not used)	
147	VSS		–	GND	
148	VCCI		–	Power supply (+1.8 V)	
149	PPG0/PC0	FAN_CONT_POW0	O	FAN_PWM control output 6 V to 11 V control	PWM
150	PPG1/PC1	HOT_P1	O	Hot plug information for HDMI to return to the transmitter side INPUT3	L
151	PPG2/PC2	HOT_P2	O	Hot plug information for HDMI to return to the transmitter side INPUT2	L
152	PPG3/PC3	RELAY	O	MR power ON relay	H
153	TOUT0/TRG0/PC4	WE_MD	O	UART path change SW for the module microcomputer	L
154	TOUT1/TRG1/PC5	HOT_P3	O	Operate hot plug information for DVI to return to the transmitter side	L
155	TOUT2/PC6	FAN_NG1	I	NG signal detection from the FAN	H
156	RIN/PC7	NC	O	–	L
157	DREQ0/PD0		I	GND	L
158	DACK0/PD1	LVDS_ON	O	LVDS output control (not used)	H
159	DEOP0/PD2	FAN_CONT_POW1	O	Standby circuit for four stages FAN control (not used)	H
160	DREQ1/TIN0/PD3	NC	I	GND	–
161	DACK1/TIN1/PD4	NC	I	GND	–
162	DEOP1/TIN2/PD5	PD5	I	Detect in rewriting from a flash ROM writer (sync ⇔ asynchronous)	L
163	DREQ2/TRG1/PE0	nCONFIG	O	FPGA hardware reset	L
164	DACK2/TRG2/PE1	DEMP	O	–	L
165	DEOP2/TRG3/PE2	EEPRST	O	Power reset SW of EEPROM	L
166	VCEE		–	Power supply (+3.3 V)	
167	VSS		–	GND	
168	VCCI		–	Power supply (+1.8 V)	
169	D16/P20	DQ0		External data bus	
170	D17/P21	DQ1		External data bus	
171	D18/P22	DQ2		External data bus	
172	D19/P23	DQ3		External data bus	
173	D20/P24	DQ4		External data bus	
174	D21/P25	DQ5		External data bus	
175	D22/P26	DQ6		External data bus	
176	D23/P27	DQ7		External data bus	

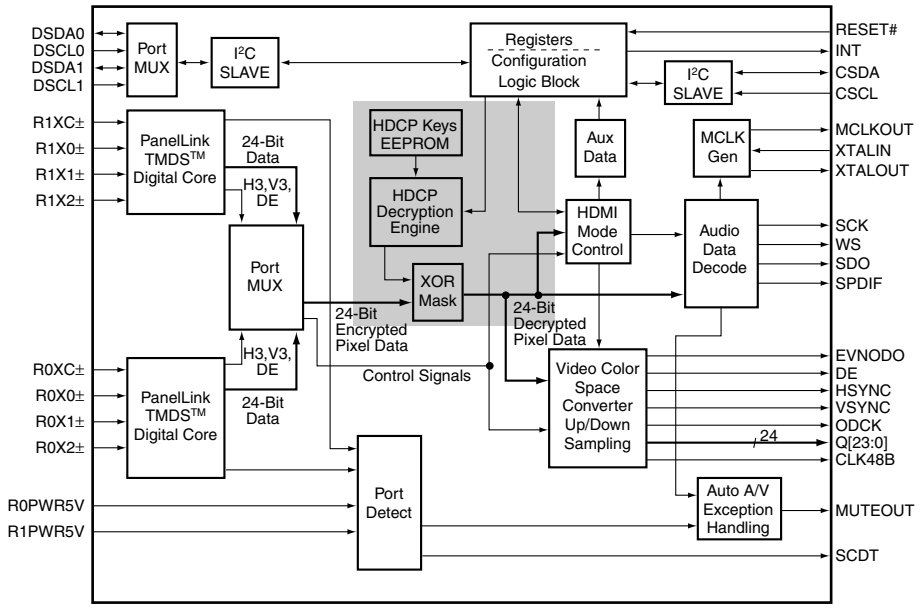
Sil9023CTU-K (FHD MAIN ASSY: IC6801)

• HDMI Rx

● Pin Arrangement (Top view)



● Block Diagram



● **Pin Function**

No.	Pin Name	I/O	Pin Function
1	DE	O	Data enable
2	HSYNC	O	H. sync. output control
3	VSYNC	O	V. sync. output control
4	IOGND	–	I/O GND
5	IOVCC	–	I/O VCC
6	NC	–	Non connection
7	NC	–	Non connection
8	NC	–	Non connection
9	EVNODD	O	EVEN/ODD field indicator
10	NC	–	Non connection
11	NC	–	Non connection
12	NC	–	Non connection
13	NC	–	Non connection
14	NC	–	Non connection
15	IOGND	–	I/O GND
16	IOVCC	–	I/O VCC
17	NC	–	Non connection
18	NC	–	Non connection
19	NC	–	Non connection
20	NC	–	Non connection
21	CGND	–	Digital logic GND
22	CVCC18	–	Digital logic VCC (1.8 V)
23	CVCC18	–	Digital logic VCC (1.8 V)
24	CGND	–	Digital logic GND
25	IOGND	–	I/O GND
26	IOVCC	–	I/O VCC
27	CSDA	I/O	Configuration I2C data
28	CSCL	I	Configuration I2C clock
29	DSDA1	I/O	DDC I2C data for port 1
30	DSCL1	I	DDC I2C clock for port 1
31	DSDA0	I/O	DDC I2C data for port 0
32	DSCL0	I	DDC I2C clock for port 0
33	R1PWR5V	I	Port 1 transfer detection
34	R0PWR5V	I	Port 0 transfer detection
35	CVCC18	–	Digital logic VCC (1.8 V)
36	CGND	–	Digital logic GND
37	PVCC0	–	TMDS port 0 PLL VCC
38	AVCC	–	TMDS analog VCC
39	R0XC-	I	TMDS input clock
40	R0XC+	I	TMDS input clock
41	AGND	–	TMDS analog GND
42	AVCC	–	TMDS analog VCC
43	R0X0-	I	TMDS input data
44	R0X0+	I	TMDS input data
45	AGND	–	TMDS analog GND
46	AVCC	–	TMDS analog VCC
47	R0X1-	I	TMDS input data
48	R0X1+	I	TMDS input data
49	AGND	–	TMDS analog GND
50	AVCC	–	TMDS analog VCC

● **Pin Function**

No.	Pin Name	I/O	Pin Function
51	R0X2-	I	TMDS input data
52	R0X2+	I	TMDS input data
53	AGND	–	TMDS analog GND
54	TMDSPGND	–	TMDS PLL GND
55	PVCC1	–	TMDS port 1 PLL VCC
56	RSVD_A	–	Reserved
57	AVCC	–	TMDS analog VCC
58	R1XC-	I	TMDS input clock
59	R1XC+	I	TMDS input clock
60	AGND	–	TMDS analog GND
61	AVCC	–	TMDS analog VCC
62	R1X0-	I	TMDS input data
63	R1X0+	I	TMDS input data
64	AGND	–	TMDS analog GND
65	AVCC	–	TMDS analog VCC
66	R1X1-	I	TMDS input data
67	R1X1+	I	TMDS input data
68	AGND	–	TMDS analog GND
69	AVCC	–	TMDS analog VCC
70	R1X2-	I	TMDS input data
71	R1X2+	I	TMDS input data
72	AGND	–	TMDS analog GND
73	CGND	–	Digital logic GND
74	CVCC18	–	Digital logic VCC (1.8 V)
75	IOGND	–	I/O GND
76	IOVCC	–	I/O VCC
77	MUTEOUT	O	Audio output mute
78	SPDIF	O	S/PDIF audio output
79	CVCC18	–	Digital logic VCC (1.8 V)
80	CGND	–	Digital logic GND
81	RSVD	O	–
82	RSVD	O	–
83	RSVD	O	–
84	SD0	O	I2C serial data output
85	WS	O	I2C word select output
86	SCK	O	I2C serial clock output
87	NC	–	Non connection
88	MCLKOUT	O	Audio master clock output
89	IOVCC	–	I/O VCC
90	IOGND	–	I/O GND
91	CGND	–	Digital logic GND
92	CVCC18	–	Digital logic VCC (1.8 V)
93	NC	–	Non connection
94	AUDPVCC18	–	ACR PLL VCC
95	AUDPGND	–	ACR PLL GND
96	XTALOUT	O	Crystal clock output
97	XTALIN	I	Crystal clock input
98	XTALVCC	–	ACR PLL crystal input VCC
99	REGVCC	–	ACR PLL regulator VCC
100	NC	–	Non connection

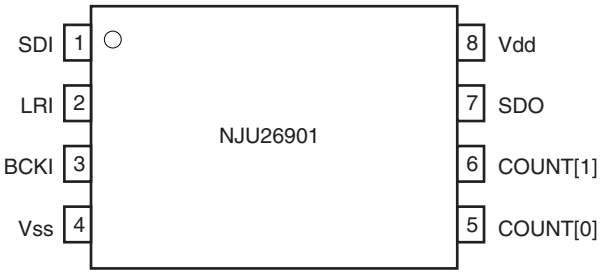
● **Pin Function**

No.	Pin Name	I/O	Pin Function
101	RSVDL	I	Reserved, Low fixing
102	RESET#	I	Reset, active Low
103	SCTD	O	Display active video with the HDMI input port
104	INT	O	Interruption output
105	CVCC18	–	Digital logic VCC (1.8 V)
106	CGND	–	Digital logic GND
107	CLK48B	I/O	Data bus latch enable
108	IOGND	–	I/O GND
109	IOVCC	–	I/O VCC
110	Q23	O	24-bit output, pixel data bus
111	Q22	O	24-bit output, pixel data bus
112	Q21	O	24-bit output, pixel data bus
113	Q20	O	24-bit output, pixel data bus
114	CVCC18	–	Digital logic VCC (1.8 V)
115	CGND	–	Digital logic GND
116	Q19	O	24-bit output, pixel data bus
117	Q18	O	24-bit output, pixel data bus
118	Q17	O	24-bit output, pixel data bus
119	Q16	O	24-bit output, pixel data bus
120	IOGND	–	I/O GND
121	ODCK	O	Output data clock
122	IOVCC	–	I/O VCC
123	Q15	O	24-bit output, pixel data bus
124	Q14	O	24-bit output, pixel data bus
125	Q13	O	24-bit output, pixel data bus
126	Q12	O	24-bit output, pixel data bus
127	CGND	–	Digital logic GND
128	CVCC18	–	Digital logic VCC (1.8 V)
129	Q11	O	24-bit output, pixel data bus
130	Q10	O	24-bit output, pixel data bus
131	Q9	O	24-bit output, pixel data bus
132	Q8	O	24-bit output, pixel data bus
133	Q7	O	24-bit output, pixel data bus
134	IOVCC	–	I/O VCC
135	IOGND	–	I/O GND
136	Q6	O	24-bit output, pixel data bus
137	Q5	O	24-bit output, pixel data bus
138	CGND	–	Digital logic GND
139	CVCC18	–	Digital logic VCC (1.8 V)
140	Q4	O	24-bit output, pixel data bus
141	Q3	O	24-bit output, pixel data bus
142	Q2	O	24-bit output, pixel data bus
143	Q1	O	24-bit output, pixel data bus
144	Q0	O	24-bit output, pixel data bus

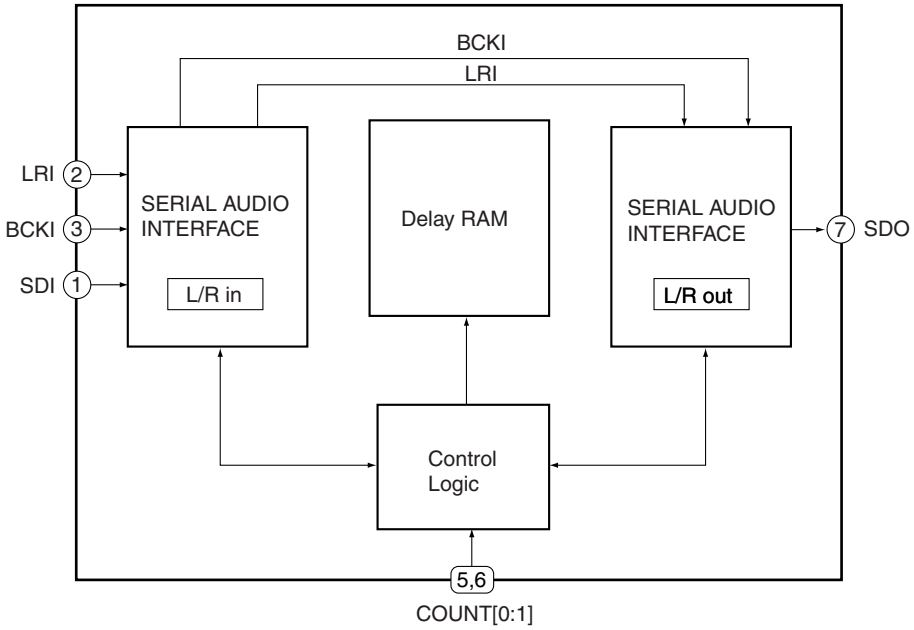
NJU26901E2 (FHD PRE AUDIO ASSY: IC8208)

• LIP Sync IC

● Pin Arrangement (Top view)



● Block Diagram



● Pin Function

No.	Pin Name	I/O	Pin Function
1	SDI	I	Serial audio data input
2	LRI	I	LR clock input
3	BCKI	I	Serial clock input
4	Vss	–	– power supply (Normally: GND)
5	COUNT[0]	I*	Delay time setting 0
6	COUNT[1]	I*	Delay time setting 1
7	SDO	O	Serial audio data output
8	Vdd	–	+ power supply (Normally: +2.5 V)

* with pull up

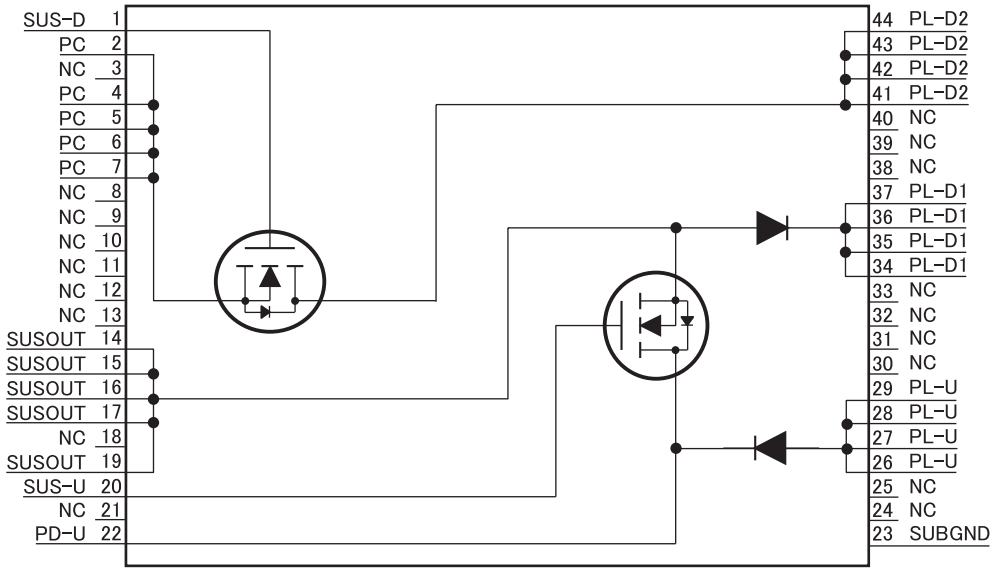
● Delay Time

Sampling Frequency (fs)	4/4 (COUNT[1:0]=11)	3/4 (COUNT[1:0]=01)	1/2 (COUNT[1:0]= 10)	1/4 (COUNT[1:0]= 00)
48KHz	85ms	64ms	43ms	21ms

AXF1159 (50FHD Y DRIVE ASSY: IC2103, IC2151)
(50FHD X DRIVE ASSY: IC1103, IC1131)

• DK Mod.

● Block Diagram



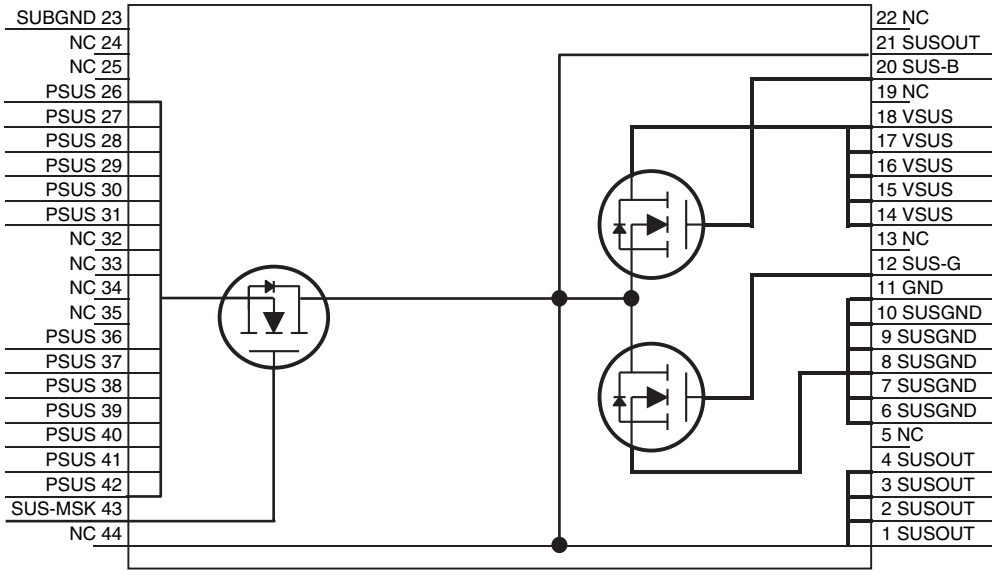
● Pin Function

PIN No.	NAME	I/O	FUNCTION
1	SUS-D	I	SUS-D signal terminal
2	PC	O	PC terminal (center point capacitor potential)
4	PC	O	PC terminal (center point capacitor potential)
5	PC	O	PC terminal (center point capacitor potential)
6	PC	O	PC terminal (center point capacitor potential)
7	PC	O	PC terminal (center point capacitor potential)
14	SUSOUT	O	SUSOUT output terminal
15	SUSOUT	O	SUSOUT output terminal
16	SUSOUT	O	SUSOUT output terminal
17	SUSOUT	O	SUSOUT output terminal
19	SUSOUT	O	SUSOUT output terminal
20	SUS-U	I	SUS-U signal terminal
22	PD-U	O	PD-U terminal
23	SUBGND	I	GND fixed terminal
26	PL-U	O	PL-U terminal
27	PL-U	O	PL-U terminal
28	PL-U	O	PL-U terminal
29	PL-U	O	PL-U terminal
34	PL-D1	O	PL-D1 terminal
35	PL-D1	O	PL-D1 terminal
36	PL-D1	O	PL-D1 terminal
37	PL-D1	O	PL-D1 terminal
41	PL-D2	O	PL-D2 terminal
42	PL-D2	O	PL-D2 terminal
43	PL-D2	O	PL-D2 terminal
44	PL-D2	O	PL-D2 terminal

AXF1160 (50FHD X DRIVE ASSY : IC1203, IC1205)

• X MASK MOD.

● Block Diagram



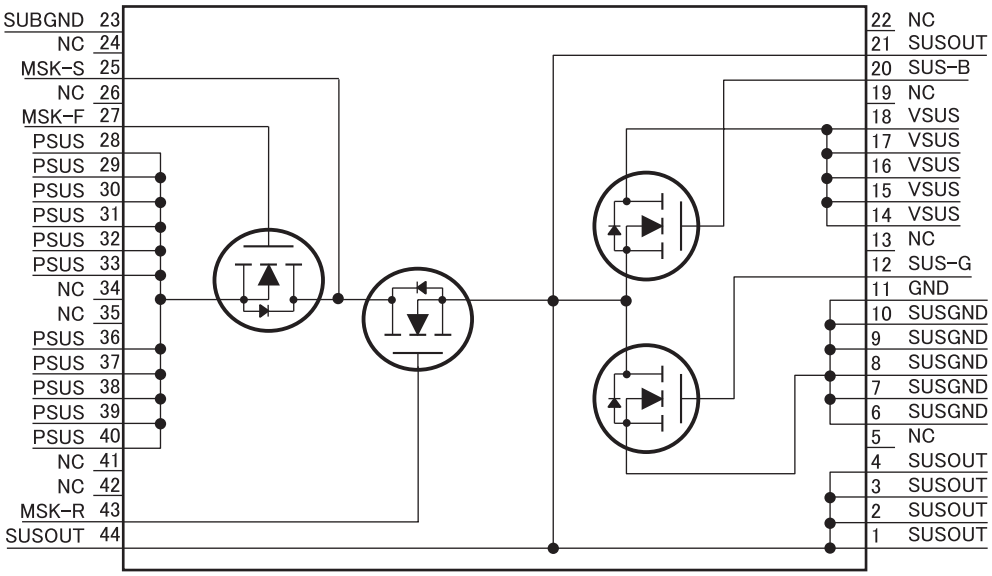
● Pin Function

PIN No.	NAME	I/O	FUNCTION
1	SUSOUT	O	SUSOUT output terminal
2	SUSOUT	O	SUSOUT output terminal
3	SUSOUT	O	SUSOUT output terminal
4	SUSOUT	O	SUSOUT output terminal
6	SUSGND	-	SUSGND terminal
7	SUSGND	-	SUSGND terminal
8	SUSGND	-	SUSGND terminal
9	SUSGND	-	SUSGND terminal
10	SUSGND	-	SUSGND terminal
11	GND	-	GND terminal
12	SUS-G	I	SUS-G signal terminal
14	VSUS	I	VSUS power terminal
15	VSUS	I	VSUS power terminal
16	VSUS	I	VSUS power terminal
17	VSUS	I	VSUS power terminal
18	VSUS	I	VSUS power terminal
20	SUS-B	I	SUS-B signal terminal
21	SUSOUT	O	SUSOUT terminal
23	SUBGND	-	GND fixed terminal
26	PSUS	O	PSUS terminal
27	PSUS	O	PSUS terminal
28	PSUS	O	PSUS terminal
29	PSUS	O	PSUS terminal
30	PSUS	O	PSUS terminal
31	PSUS	O	PSUS terminal
36	PSUS	O	PSUS terminal
37	PSUS	O	PSUS terminal
38	PSUS	O	PSUS terminal
39	PSUS	O	PSUS terminal
40	PSUS	O	PSUS terminal
41	PSUS	O	PSUS terminal
42	PSUS	O	PSUS terminal
43	SUS-MSK	I	SUS-MSK signal terminal

AXF1161 (FHD Y DRIVE ASSY: IC2301, IC2302)

• Y Mask Mod.

● Block Diagram



● Pin Function

PIN No.	NAME	I/O	FUNCTION
1	SUSOUT	O	SUSOUT output terminal
2	SUSOUT	O	SUSOUT output terminal
3	SUSOUT	O	SUSOUT output terminal
4	SUSOUT	O	SUSOUT output terminal
6	SUSGND	-	SUSGND terminal
7	SUSGND	-	SUSGND terminal
8	SUSGND	-	SUSGND terminal
9	SUSGND	-	SUSGND terminal
10	SUSGND	-	SUSGND terminal
11	GND	-	GND terminal
12	SUS-G	I	SUS-G signal terminal
14	VSUS	I	VSUS power terminal
15	VSUS	I	VSUS power terminal
16	VSUS	I	VSUS power terminal
17	VSUS	I	VSUS power terminal
18	VSUS	I	VSUS power terminal
20	SUS-B	I	SUS-B signal terminal
21	SUSOUT	-	SUSOUT output terminal
23	SUBGND	-	GND fixed terminal
25	MSK-S	I	MSK-S signal terminal
27	MSK-F	I	MSK-F signal terminal
28	PSUS	-	PSUS output terminal
29	PSUS	-	PSUS output terminal
30	PSUS	-	PSUS output terminal
31	PSUS	-	PSUS output terminal
32	PSUS	-	PSUS output terminal
33	PSUS	-	PSUS output terminal
36	PSUS	-	PSUS output terminal
37	PSUS	-	PSUS output terminal
38	PSUS	-	PSUS output terminal
39	PSUS	-	PSUS output terminal
40	PSUS	-	PSUS output terminal
43	MSK-R	I	MSK-R signal terminal
44	SUSOUT	-	SUSOUT output terminal